APPENDIX I
Cook and Lake County, Illinois
Discovery Report

Discovery Report

Great Lakes Coastal Flood Study

Lake Michigan

Cook County and Lake County, Illinois

Individual Discovery Report

Report Number 01

February 2013

U.S. Department of Homeland Security
Federal Emergency Management Agency Region V
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Project Area Community List

This list includes all communities within the Project Area covered by this report for the Great Lakes Coastal Study under consideration for new Federal Emergency Management Agency (FEMA) Risk Mapping, Assessment, and Planning (Risk MAP) products and datasets, which may include Flood Insurance Studies (FISs) and Flood Insurance Rate Maps (FIRMs). Not all communities will receive new/updated FEMA Risk MAP products and datasets or FISs and FIRMs.

Cook County	Lake County
Chicago, City of	Beach Park, Village of
Cook County (unincorporated areas)	Highland Park, City of
Evanston, City of	Highwood, City of
Glencoe, Village of	Lake Bluff, Village of
Kenilworth, Village of	Lake County (unincorporated areas)
Northfield, Village of	Lake Forest, City of
Wilmette, Village of	North Chicago, City of
Winnetka, Village of	Waukegan, City of
	Winthrop Harbor, Village of
	Zion, City of

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Acronyms and Abbreviations

AAL	Average Annualized Loss
CAV	Community Assistance Visit
CBRS	Coastal Barrier Resources System
CID	Community Identification Number
CIS	Community Information System
CMAG	Coastal Management Assistance Grant
C-MAN	Coastal Marine Automated Network
CNMS	Coordinated Needs Management Strategy
CO-OPS	Center for Operational Oceanographic Products and Services
CRS	Community Rating System
DFO	Department of Fisheries and Oceans
FEMA	Federal Emergency Management Agency
FIPS	Federal Information Processing Standards
FIRM	Flood Insurance Rate Map
FIS	Flood Insurance Study
GLCRG	Great Lakes Coastal Restoration Grant
Hazus-MH	Multi-Hazard Risk Assessment and Loss Estimation Software Program
HWM	High Water Mark
HUC8	Hydrologic Unit Code 8
LOMA	Letter of Map Amendment
LOMC	Letter of Map Change
LOMR	Letter of Map Revision
LOMR-F	Letter of Map Revision based on Fill
MLI	Midterm Levee Inventory
NDBC	National Data Buoy Center
NFIP	National Flood Insurance Program
NGDC	National Geophysical Data Center
NID	National Inventory of Dams
NOAA	National Oceanic and Atmospheric Administration
NWS	National Weather Service
Risk MAP	Risk Mapping, Assessment, and Planning
SFHA	Special Flood Hazard Area
USACE	U.S. Army Corps of Engineers
USGS	U.S. Geological Survey

I. Discovery Overview

The Federal Emergency Management Agency (FEMA) Risk Mapping, Assessment, and Planning, or Risk MAP, program, helps communities identify, assess, and reduce their flood risk. Through Risk MAP, FEMA provides information to enhance local mitigation plans, improve community outreach, and increase local resilience to floods.

During the Discovery phase of Risk MAP project development, FEMA:

- Gathers information about local flood risk and flood hazards
- Reviews mitigation plans to understand local mitigation capabilities, hazard risk assessments, and current or future mitigation activities
- Supports communities within the coastal area to develop a vision for the future
- Collects information from communities about their flooding history, development plans, daily operations, and stormwater and floodplain management activities
- Uses all information gathered to determine which areas require mapping, risk assessment, or mitigation planning assistance through a Risk MAP project
- Develops Discovery Map and Report that summarize and display the Discovery findings

The Discovery process involves coordination with Great Lakes stakeholders, data collection and analysis, community interviews, a Discovery Meeting with stakeholders affected by the study, and development of recommendations based on an analysis of data and information gathered throughout the process.

i. Great Lakes Coastal Flood Study

FEMA has initiated a coastal analysis and mapping study that may result in updated Flood Insurance Rate Maps (FIRMs) for coastal counties along the Great Lakes. The new coastal flood hazard analyses will utilize updated 1-percent-annual-chance (100-year) flood elevations obtained from a comprehensive storm surge study being developed by the U.S. Army Corps of Engineers (USACE).

The Great Lakes Coastal Flood Study (GLCFS) will incorporate modern analysis of historic storm and high water events and provide for updated flood risk information serving United States communities having shoreline along the Great Lakes. The storm surge study is one of the most extensive coastal storm surge analyses to date, encompassing coastal floodplains in the eight States with coastlines on the Great Lakes.

An updated coastal flood study is needed to obtain a better estimate of coastal flood hazards on the Great Lakes. The current, effective FIRMs are outdated primarily due to the age of data and the coastal methodologies used in producing them. Major changes in National Flood Insurance Program (NFIP) policies and methodologies have been implemented since the effective date of many flood insurance studies in the area, creating the need for an update that will reflect a more detailed and complete hazard determination.

The GLCFS includes a system-wide solution that provides a comprehensive analysis of storm and high water events within the Great Lakes Basin. This program is funded through the FEMA Risk MAP program. FEMA, USACE, Association of State Floodplain Managers (ASFPM), State partners, and FEMA contractors will collaborate in updating the coastal methodology and flood maps, and create new flood risk products. FEMA manages the NFIP, which is the cornerstone of the national strategy for preparing communities for flood-related disasters.

ii. Purpose of Great Lakes Discovery

The Great Lakes Discovery process included data collection, information exchange between all governmental levels of stakeholders, spatial data presentation, cooperative discussion with stakeholders to better understand the Great Lakes area, and a collaborative approach on the project planning. The process allowed FEMA to continue to vet the Great Lakes coastal study methodologies with a large stakeholder group, to discuss local priorities and data, to discuss mitigation strategies and coastal issues, and to move towards a project that will successfully identify the risks associated with Great Lakes flooding.

The Discovery process also helped FEMA to better identify the types of datasets or products that will be useful at the local level, especially as it relates to identifying new mitigation strategies and actions, and for use in local planning efforts. Products that may be available to communities as a result of this Great Lakes flood study include updated FIRMs and FISs, coastal flood risk products, calibrated models for storm surge and wave analysis on each of the lakes, and accurate depictions of water level and wave response on

each lake occurring during hundreds of actual events. The type of product a community receives is dependant not only on the coastal flood study analysis results, but also on the type of datasets, local and national, that are available.

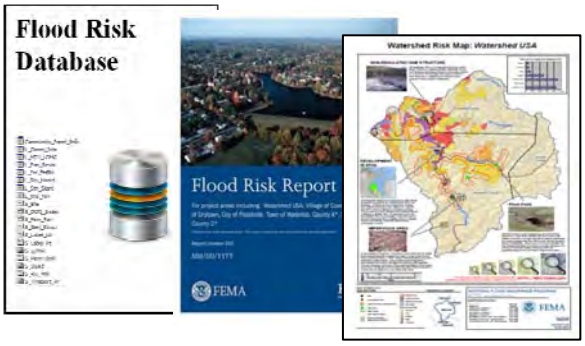
The following section describes the coastal flood risk products that a community may receive, as well as some products that are under development for the Great Lakes study areas.

iii. Coastal Flood Risk Products

As part of a Risk MAP project, FEMA will seek to provide State and community officials with three flood risk products to help them gain a better understanding of flood risk and its potential impact on communities and individuals. These products will also enable communities to move forward with informed mitigation actions to reduce identified risk. Delivery of the products discussed below will depend on available data, results of coastal analysis, local partnerships, and fiscal year funding.

The three products are:

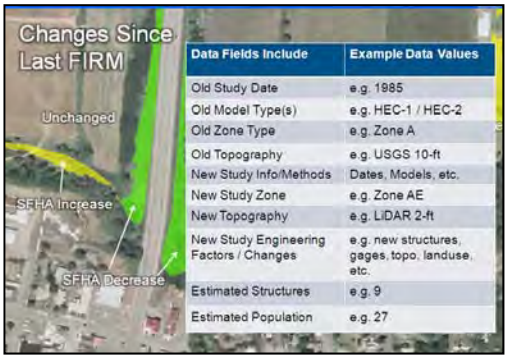
- Flood Risk Database
- Flood Risk Report
- Flood Risk Map



These products will summarize information captured in flood risk datasets that may be generated during a Risk MAP, or flood risk, study. The flood risk datasets could include regular and enhanced products. Standard flood risk datasets, also termed products, are described below.

- **Changes Since Last FIRM (CSLF)**
  The CSLFs serve the following purposes:
  Identify Areas and Types of Flood Zone Change:
  - Compares current effective (previous) with proposed (new) flood hazard mapping; and
  - Flood zone changes are categorized and quantified.

  Provide Study/Reach Level Rationale for Changes Including:
  - Methodology and assumptions; and



- Changes of model inputs or parameters (also known as Contributing Engineering Factors).

- **Flood Depth and Analysis Grids (1-percent-annual-chance event only)**

  Reflect total depth (i.e. stillwater and waves). Will be created for the 1-percent frequency event of the engineering studies performed and as appropriate for the data. Wave runup areas may not be applicable. Created using the regulatory mapping and associated zone breaks as input

- **Flood Risk Assessment (Hazus-MH)**

  Hazus-MH combines science, engineering and mathematical modeling with GIS technology to estimate losses of life and property, and shows those losses on a map. HAZUS-MH estimates impacts to the physical, social, and economic vitality of a community from earthquakes, hurricane, winds, and floods.

  Coastal flood risk assessments will be similar to riverine, but will use coastal depth grids as input for refined analysis.

  Hazus-MH analysis and data can support adoption of high regulatory standards for structures in high loss areas.

  Hazus-MH results can help to provide justification to find mitigation projects to protect citizens and properties from losses during future coastal flood events.

HAZUS MH
EARTHQUAKE • WIND • FLOOD

For more information about Hazus and data inputs, visit http://www.fema.gov/hazus or enter keywords "fema hazus" into an internet search engine.

In addition, FEMA is looking into the possibility of developing some unique Great Lakes coastal flood risk products that utilize datasets that have recently been collected or will be collected as part of the GLCFS:

- Storm Response Erosion Data: Dataset is expected to contain the results from erosion analysis in response to the 1-percent-annual chance flood event
- Shoreline Feature Data: Dataset was developed by the USACE in 2012 and contains primary and secondary land use tables, as well as coastline type, materials, and vegetation. The current dataset contains data at one-mile spacing. The dataset does not include field-based reconnaissance or sediment/subsurface soil collection.

The delivery of these standard flood risk products and the Great Lakes coastal flood risk datasets will be dependent on the location of the Risk MAP study and coastal analysis, data availability, fiscal year funding, and partnerships with local communities. Therefore, all communities may not receive flood risk products.

II. Stakeholder Communication and Coordination

Communication and coordination with Federal, State and local stakeholders is key to the success of the GLCFS. A large emphasis has been placed on identifying stakeholders early and often and working with those stakeholders continually throughout the study process, from Discovery all the way through flood map and flood risk product development. Through outreach, the goal is to increase understanding of the new coastal study methodologies and the tools and processes that will be available for risk-based community planning, and to increase flood hazard awareness within the Great Lakes coastal region.

i. Lake Michigan Discovery Stakeholder Coordination

Meetings, emails, telephone calls, and letters are essential to communicate effectively throughout the life of this Lake Michigan Coastal Flood Study project, which has begun with this Discovery process.

To kick-off this Discovery process, FEMA formed a group of core stakeholders, which included representatives from FEMA Region V, STARR (mapping partner to FEMA), USACE, NOAA, ASFPM, the State NFIP Coordinators, the State Hazard Mitigation Officers (SHMOs), and State Engineers. The core stakeholders reviewed the Discovery plan, objectives, and key outcomes for Lake Michigan Discovery with FEMA, provided suggestions for outreach and communication, and raised any concerns as it related to Lake Michigan and the coastal flood study process. Following this kick-off process, outreach, communication, and coordination with local stakeholders was initiated.

Discovery Meeting letter invitations were sent to local community and county stakeholders within the Cook and Lake County portions of the Lake Michigan Coastal Flood Study project. In addition, an email invitation was sent to a larger list of stakeholders including, but not limited to, the core stakeholders, other federal agencies, universities, watershed groups, Great Lakes associations, technical stakeholders, and emergency management agencies. Representatives from the local governments, including cities, townships, and villages were considered fundamental stakeholders in this process because they have been elected or appointed to represent the interests of the residents of this project area.

The Discovery Meeting invitations also included a Coastal Data Request Form (Attachment A). Communities were asked to provide information on data that they had available at the local level that may be of use during the flood study update and during the development of the coastal flood risk products discussed earlier in this report. The Coastal Data Request Form included data requests for:

- Base Map Data
- Coastal Data
- Historic Flood Data
- Risk Assessment
- Flood Mitigation Information
- Community Plans and Projects
- Other comments/concerns based on local knowledge

The Metropolitan Water Reclamation District (MWRD) of Greater Chicago, the Village of Winnetka, and the City of North Chicago returned information through use of the Coastal Data Request Form. A summary of the responses to the Coastal Data Request Form can be found in Section IV, Summary of Data Analysis, of this report.

In addition to the hard copy letter invitations, and in order to improve the communication and data sharing leading up to the Discovery Meeting, FEMA offered local communities an opportunity to attend a pre-Discovery Meeting conference call, also termed an "Information Exchange Session". The conference call information was included in the Discovery Invitation letters mailed to local community officials, and an email reminder was sent out as well. The session's intent was to begin the process of learning about local data availability and what the critical issues are for the Great Lakes communities. Representatives from Illinois State Water Survey, Cook County Highway Department, Cook County Department of Homeland Security and Emergency Management, City of Evanston (Cook County), Village of Wilmette (Cook County), Village of Winnetka (Cook County), Village of Glencoe (Cook County), City of North Chicago (Lake County), City of Waukegan (Lake County), and City of Lake Forest (Lake County) were in attendance. Stakeholders discussed their current data availability, as well as questions they had regarding the upcoming GLCFS process, areas of concern, and the Coastal Data Request Form.

The core stakeholder documents, "Information Exchange Session" documents, stakeholder contact list, and Discovery Meeting invitations can be found in Attachment B, Cook and Lake County Pre-Meeting Correspondence.

III. Discovery Meeting

The Discovery Meeting for Cook and Lake County was held on August 23, 2012 in Evanston, Illinois. Communities and stakeholders affected by coastal flooding in Cook and Lake County were invited to the Discovery Meeting. The purpose of this meeting was to facilitate discussion about study needs, mitigation project needs, desired compliance support, and local flood risk awareness efforts.

The objectives of the Discovery Meeting included:

- Continuation and expansion upon stakeholder engagement
- Discussion of data inputs from Federal, state and local stakeholders
- Identification of local coastal flood hazard needs and areas of concern
- Identification of flood risk products and datasets that best advance coastal mitigation action
- NFIP regulatory updates
- Discovery schedule and deliverables

The Discovery Meeting presentations included the following information:

- An overview of the GLCFS and schedule
- Review of the Discovery process and outcomes
- Discussion of coastal mapping and flood risk topics to be aware of
- Discussion of how the study may affect the communities, including compliance requirements
- Review of hazard mitigation opportunities and grant funding
- Encouragement and facilitated discussion regarding coastal study needs, mitigation project needs, desired compliance support, and local flood risk awareness efforts

Draft Discovery Maps for Cook and Lake County (Attachment C) were displayed and utilized during the meeting to facilitate the discussion regarding areas of coastal flood risk concern and areas of hazard mitigation interest. The draft Discovery Maps shown at the meeting included geospatial and tabular data that had been collected prior to the meeting,

Geospatial Data:

- Average Annualized Loss (AAL) data
- Coastal Barrier Resources System (CBRS)[1]
- Coordinated Needs Management Strategy (CNMS)[2] Data- riverine only
- Proposed Transects
- Effective Special Flood Hazard Areas (SFHAs)
- Jurisdictional Boundaries
- Letters of Map Change (LOMCs)
- Levees
- Shoreline
- Streams
- USGS Gages
- Watershed Boundaries

Tabular Data:

- Declared Disasters
- Flood Insurance Data
- Potential Mitigation Actions (from local Hazard Mitigation Plans)
- Summary of Shoreline Data (Type and Coverage)

Participants at the Discovery Meeting were asked to cooperatively identify Areas of Concern and Areas of Mitigation Interest (AoMIs) within the Cook and Lake County Lake Michigan study area using the draft Discovery Maps and through general discussion during the meeting.

In addition to the draft Discovery Maps, figures showing the location of initially proposed draft transects around Cook and Lake County were available for review and comment immediately following the meetings. Stakeholders were encouraged to review the proposed draft transects and provide comments related to the location of the transects. The proposed draft transect maps that were available at the Discovery Meeting for Cook and Lake County can be found in Attachment D. A sample map is shown as Figure 1.

[1] CBRS consists of the undeveloped coastal barriers and other areas located on the coasts of the United States that are identified and generally depicted on a series of maps. CBRS areas are ineligible for most new Federal expenditures and financial assistance.

[2] CNMS is FEMA's strategy for coordinating the management of mapping needs using modern geospatial technologies and current policies, requirements, and procedures. CNMS makes information related to mapping needs readily accessible and more usable. CNMS is only for riverine studies at this time. It is expected coastal needs will be captured in this system in the future.

Figure 1: Sample Proposed Draft Transect Figure

All comments that were provided during the Cook and Lake County Discovery Meeting on the draft Discovery Maps and draft transect figures, as well as comments provided following the meeting, have been compiled into geospatial layers and associated tables. The layers, titled "Stakeholder General Comments" and "Stakeholder Transect Comments", can be found on the Final Discovery Map in Appendix R of the basin-wide Lake Michigan Discovery Report (Federal Emergency Managment Agency, 2013). Each comment has a unique map identification number (if one exists) that correlates to its location on the Final Discovery Map. The identification of a comment (ID) categorized as a "Stakeholder General Comment" is represented by using the first three letters of the county name followed by a unique number (i.e. LAK – 1, LAK - 2). The identification of a comment (ID) categorized as a "Stakeholder Transect Comment" is represented by using the first three letters of the county name, followed by "TR", followed by a unique number (i.e. LAK-TR-1, LAK-TR-2).

A summary of the transect comments collected and the resulting revisions to the draft transect layout can be found in this report in Section IV, Summary of Data Analysis, under the "Proposed Draft Transects" subsection.

Discovery meeting minutes, sign in sheets, PowerPoint presentation, marked up draft Discovery Maps, and correspondence documentation have been included in the Attachment F, Cook and Lake County Discovery Meeting Documents.

IV. Summary of Data Analysis

During this Discovery portion of the Lake Michigan Coastal Flood Study project, a massive collection of tabular and spatial data was conducted for all the coastal communities from Federal and State sources, as well as information collected through phone conversation, information exchange session conference calls, the Discovery Meeting, and the Discovery Coastal Data Request Forms sent to each coastal community. This section lists the types of data and their sources that were collected for the Cook and Lake County study area, including information collected during and after the Discovery Meeting. The data analysis that follows Table 1 is divided into two sections: one section listing the data that can be used for Risk MAP product development and the other section listing the information that helped the study team to form a better understanding of the Cook and Lake County Lake Michigan Project Area prior to moving forward with the coastal flood study

Table 1. Data Collected for Cook and Lake County

Data Types	Deliverable/ Product	Source	Date of Data Collection	Level
Average Annualized Loss Data (AAL)	Discovery Map	Federal Emergency Management Agency (FEMA)	June 2012	Nationwide
Bathymetry and Topography	Discovery Report	USACE	2012/2013	Lakewide
Census Blocks	Discovery Map	U.S. Census Bureau	June 2012	Countywide
Coastal Data Request Form	Discovery Report	Community and County Stakeholders	July 2012	Countywide
Contacts	Discovery Report	Local Community Websites, State/FEMA updates	June 2012	Countywide
Community Assistance Visits (CAVs)	Discovery Report	FEMA Community Information System (CIS)	July 2012	Countywide
Community Rating System (CRS)	Discovery Report	FEMA's "Community Rating System Communities and Their Classes"	July 2012	Nationwide
Comprehensive Plans	Discovery Report	Local Community Websites	July 2012	Countywide
Coastal Barrier Resources System (CBRS)	Discovery Map	U.S. Fish and Wildlife Service	July 2012	Nationwide
Coastal Structures	Discovery Map/Tabular Data	U.S. Army Corps of Engineers (USACE)	August 2012	Nationwide

Table 1. Data Collected for Cook and Lake County

Data Types	Deliverable/ Product	Source	Date of Data Collection	Level
Coordinated Needs Management Strategy (CNMS)	Discovery Map	FEMA	July 2012	Countywide
Critically Erosion Beach Areas	Discovery Report	Local Stakeholders	August 2012	Statewide
Critical Facilities	Discovery Report	Local Mitigation Plan	July 2012	Countywide
Dams	Discovery Report	USACE, National Inventory of Dams, Flood Insurance Rate Map (FIRM) Database	July 2012	Countywide
Declared Disasters	Discovery Report	FEMA's "Disaster Declarations Summary"	June 2012	Nationwide
Demographics, Industry	Discovery Report	U.S. Census Bureau, Local Mitigation Plans	June 2012	Countywide
Effective Floodplains	Discovery Map	FEMA Map Service Center and Mapping Information Platform	June 2012	Countywide
Flood Insurance Policies	Discovery Report	FEMA CIS	July 2012	Nationwide
Hazard Mitigation Plans and Status	Discovery Report	Local Mitigation Plans	July 2012	Countywide
Hazard Mitigation Assistance Program Grants Received	Discovery Report	FEMA's "Hazard Mitigation Program Summary" Community Input	June 2012	Nationwide
Hazard Mitigation Projects	Discovery Report	Local Mitigation Plans	July 2012	Countywide
High Water Marks	Discovery Report	Effective Flood Insurance Study (FIS)	August 2012	Countywide
Historical Flooding	Discovery Report	Effective Flood Insurance Study (FIS), Local Mitigation Plans	July 2012	Countywide
Historical Storm Events	Discovery Report	Effective FIS, Local Mitigation Plans	July 2012	Countywide
Individual/Public Assistance	Discovery Report	FEMA's "Public Assistance Subgrantee Summary"	June 2012	Nationwide
Letters of Map Change (LOMCs)	Discovery Map	FEMA's Mapping Information Platform	July 2012	Countywide

Table 1. Data Collected for Cook and Lake County

Data Types	Deliverable/ Product	Source	Date of Data Collection	Level
Local Data	Discovery Report	Coastal Data Request Form completed by communities	August 2012	Countywide
Meteorological Gages	Discovery Map	National Oceanic and Atmospheric Administration (NOAA) Great Lakes Environmental Research Laboratory	July 2012	Regionwide
Oblique Imagery	Discovery Report	USACE	2012	Lakewide
Ordinance	Discovery Report	Local Community Websites	July 2012	Countywide
Proposed Draft Transects	Discovery Map	FEMA	February 2013	Lakewide
Pre-Disaster Mitigation Grant Program	Discovery Report	FEMA's "Hazard Mitigation Program Summary"	July 2012	Countywide
Repetitive Loss	Discovery Report	FEMA CIS	July 2012	Countywide
Shoreline Classification	Discovery Map	USACE	July 2012	Regionwide
Stream Gages	Discovery Map	USGS	July 2012	Countywide
Water Level Gages	Discovery Map	NOAA Department of Fisheries and Oceans	July 2012	Regionwide
Wave Gages	Discovery Map	NOAA	July 2012	Regionwide

i. Data that can be used for future Coastal Flood Risk Products

During the Discovery process, the project team created a database of available flood hazard and flood risk assessment data. This database not only provides an inventory of available data, but helps identify gaps in the flood hazard data. State, county, and government geographic information system (GIS) websites can provide some of the pertinent data, but local knowledge of flooding and mitigation projects is critical to help accurately determine flood risks and mapping needs. Therefore, local and regional data were also used where available. The subsections below provide details on the data determined to be available within the project area.

I.IV.i.1 Average Annualized Loss (AAL) Data

Average Annualized Loss (AAL) data provides a general understanding of the dollar losses associated with a certain frequency of flood events within a county and is used to get a relative comparison of flood risk. They are determined by FEMA's Multi-Hazard Risk Assessment and Loss Estimation Program, otherwise known as Hazus-MH.

Hazus, a free risk assessment software application from FEMA, is the most widely used flood risk assessment tool available. Hazus can run different scenario floods (riverine and coastal) to determine how much damage might occur as a result. Hazus can also be used by community officials to evaluate flood damage that can occur based on new or proposed mitigation projects or future development patterns and practices, and it can run specialized risk assessments, such as what happens when a dam or levee fails.

Hazus-MH includes national datasets that can be supplemented with local data. If local detailed data are available, users may consider using this data to perform more refined Hazus analyses. Hazus-MH is flexible and allows users to update Hazus-MH with local data or use a combination of both local and national. Augmenting the Hazus-MH provided data with local data can improve the accuracy and resolution of analysis results. Additional information about the Hazus-MH process and tool can be found at http://www.fema.gov/protecting-our-communities/hazus.

The Hazus-MH analysis used in this report is based on approximate flood boundaries and national datasets. The calculation is based on flood elevation estimates using the 10-meter Digital Elevation Model (DEM) on streams with drainage areas of at least 10 square miles.

The results shown in Table 2 include data for the entire county, as opposed to only the coastal project area. Information can also be obtained from the report titled FEMA *Hazus AAL Usability Analysis*, dated April 13, 2011 (Federal Emergency Managment Agency, 2011). AAL data summarized at the census block level are shown on the draft Discovery Maps (Attachment C).

Table 2. Hazus AAL Data for Cook and Lake County

FIPS Code	County	Total Losses for Building and Content (in thousands of $)
17031	Cook County, IL	$4,199,913
17097	Lake County, IL	$291,272

Source: FEMA

FIPS = Federal Information Processing Standards

I.IV.i.2 Coastal Recession

Coastal erosion is the recession of land and the removal of beach or dune sediments. It affects all of the beaches and coasts in the world, including those of Lake Michigan. Important factors in coastal erosion are the types of rock or soil being eroded, the presence or absence of beaches or human-made structures, and how the shore is oriented with

respect to prevailing winds and waves, water levels, climatology, and groundwater and surface drainage.

Erosion and flooding of Lake Michigan's coastline have resulted in extensive damage to various facility types, including domestic, recreational, and industrial. Hundreds of millions of dollars have been lost by those people and industries in the Great Lakes Basin due to fluctuating water levels in the Great Lakes. Each time high lake levels occur, rates of bluff erosion increase, beachfront property is lost, and structures and beaches are flooded. During low lake levels, navigation channels and harbors require extensive dredging of sediments, which are often polluted (Illinois Department of Natural Resources, 2011).

The USGS initiated a 5-year study related to lake-level fluctuations in an effort document the timing and magnitude of prehistoric lake-level fluctuations, and to assess some of the important geologic processes responsible for severe erosion of the Illinois-Indiana shoreline. The study is a cooperative effort involving research staff from the Illinois State Geological Survey, the Indiana Geological Survey, Indiana University, Purdue University, Northeast Illinois University, University of Illinois at Chicago, Oregon State University, the University of Washington, the University of Rhode Island, and the Woods Hole Oceanographic Institution. More information on this study can be found at http://pubs.usgs.gov/fs/lake-michigan/index.html , accessed July 2012.

According to the Illinois Coastal Management Program document, updated November 3, 2011, the Lake Michigan coast is a dynamic setting influenced by waves, ice, and changing lake levels and the potential for coastal erosion exists along nearly the entire Illinois coast. Areas of greatest concern for coastal erosion will change with time and thus mitigation efforts must be adjusted accordingly. In the 1970s, most of the bluff coast was a critical erosion area, and during the record high lake levels of 1986-1987 erosion of beaches, parkland and deteriorated shore protection was a major concern along the Chicago lakefront (Illinois Department of Natural Resources, 2012).

Erosion along the Illinois coast tends to get public and media attention during times of high lake levels as high water causes partial to total submergence of some beaches; storm waves can damage and overtop shore structures, and localized coastal flooding may occur. It is, however, a common misconception that coastal erosion only occurs during high lake levels. Erosion can be an ongoing process regardless of lake level. Changing lake levels merely shift the erosion zone either landward or lakeward.

Four categories of coastal erosion have been, and continue to be, an issue along the Illinois Lake Michigan coast and inland waterways. This includes Shore, bluff, lakebed, and waterway bank erosion. These categories of erosion correspond to different locations on the topographic/bathymetric profile (Illinois Department of Natural Resources, 2012). More information on this can be found in the Illinois Coastal Management Program

document, Section 4, Coastal Erosion and Assessment, found at http://www.dnr.illinois.gov/cmp/Documents/4_Erosion.pdf

The majority of the Lake Michigan coastline in Illinois is protected from erosion by structures. The Illinois Department of Natural Resources (IDNR) estimates that close to 85 percent is protected. The Illinois Coastal Management Program (ICMP) reviews recent aerial photography combined with visual inspections of areas not currently protected by hardened structures in order to assess coastal erosion issues. Illinois Beach State Park represents approximately 95 percent of the area that is not currently protected by hardened structures (Illinois Department of Natural Resources, 2012).

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The ICMP continues to focus on two erosion areas of concern in Illinois. These areas have been targeted for erosion mitigation and long-term management:

- Illinois Beach State Park
- Nearshore Lakebed

For additional information on mitigation of coastal erosion in Illinois, please see the "Locally Identified Mitigation Actions" subsection of this report.

I.IV.i.3 Federal Land

Federal lands data were obtained from the National Atlas at http://nationalatlas.gov/mld/fedlanp.html . This data is also available from the National Discovery Data Repository located on FEMA's Mapping Information Platform (MIP) at https://hazards.fema.gov. The map layer shows those lands owned or administered by the Federal Government, including the Bureau of Land Management, the Bureau of Reclamation, the U.S. Department of Agriculture Forest Service, the Department of Defense, the U.S. Fish and Wildlife Service, the National Park Service, and other agencies. Only areas of 640 acres or more are included.

For Cook County, no federal lands over 640 acres were identified along the coastal areas. In Lake County, the Great Lakes Naval Training Center and Fort Sheridan, both administered by the Department of Defense, are located along portions of the Lake Michigan coastline.

I.IV.i.4 Jurisdictional Boundaries

Jurisdictional boundaries are available for Cook and Lake Counties from a derived set of TIGER line files available through the U.S. Census Bureau geography division. TIGER line files were last derived from the TIGER database in 1997. To find out more about TIGER line files and other Census TIGER database derived data sets visit http://www.census.gov/geo/www/tiger.

Cook County jurisdictional boundaries were also obtained from the Cook County and Incorporated Areas FIRM database, dated August 19, 2008.

Lake County jurisdictional boundaries were also obtained from the Lake County and Incorporated Areas FIRM database, dated November 16, 2006.

The Illinois Natural Resources Geospatial Data Clearinghouse, hosted by the Illinois State Geological Survey at http://www.isgs.illinois.edu/nsdihome, also maintains the Illinois County Boundaries dataset.

I.IV.i.5 Local Data

As part of this Discovery process, communities were asked to fill out a Coastal Data Request Form and provide information on data that they had available at the local level that may be of use during the coastal flood study update, and during the development of the coastal flood risk products discussed earlier in this report. The Coastal Data Request Form (Attachment A) included data requests for base map data, coastal data, historic flood data, risk assessment information, mitigation information, and community plans and projects.

The table in Attachment G compiles all the information collected for Cook and Lake County from the completed Coastal Data Request Forms, during the Discovery Meeting, or through phone conversations and email. Metropolitan Water Reclamation District (MWRD) of Greater Chicago (Cook County), Village of Winnetka (Cook County), and City of North Chicago (Lake County) all provided information via the Coastal Data Request Form.

In summary, the below data and information was noted by local stakeholders as existing:

- A coastal structure inventory and hydraulic structures are available in hard copy format for the greater Chicago area, in addition to mean high water and mean lake level digital data.
- MWRD developed Hydrologic & Hydraulic (H&H) models for most inland regional waterways in Cook County as part of a Detailed Watershed Plan program.
- Village of Winnetka digital data includes topography, property information, coastal structure inventory, coastal feature inventory, shoreline change data, critical facilities (water and electrical plant only), and a GIS database that includes buildings, contours, street information, hydrology, parcels, and roads.
- City of North Chicago indicated they had digital data through Lake County, including topography and property information. Also, mean high water and mean lake level data was available in hard copy format from the Water Plant plan.
- In general, communities indicated floodplain management was enforced, but most of the floodplain management practices were riverine-focused.
- Overall, comprehensive plans exist for the Cook and Lake County communities, but were not coordinated with the local hazard mitigation plans.

The datasets noted above were not all provided or collected as part of this Discovery process. Those that were provided have been included on FEMA's Mapping Information

Platform (MIP) Discovery Data Repository at J:\FEMA\DISCOVERY_DATA_REPOSITORY\R05_DATA\ and can be accessed by FEMA authorized users. The MIP can be accessed from https://hazards.fema.gov/.

I.IV.i.6 Publicly Owned Land

Illinois Beach State Park is located in the northern portion of the State of Illinois in Lake County, stretching six and a half miles along the shoreline of Lake Michigan. Several other local parks within both Cook and Lake County exist along the Lake Michigan shoreline as well.

I.IV.i.7 Shoreline Information

A shoreline feature dataset was generated by USACE Detroit District (U.S. Army Corps of Engineers, 2012) using 2012 oblique photographs (see "Topography, Bathymetry, and Oblique Imagery" subsection in this report). The dataset captures shoreline types, land uses, coverage, and vegetation types along the entire Great Lakes shoreline, including Lake Michigan. The dataset includes identification of "artificial" shoreline, which may be indicative of local coastal flood protection structures. This dataset does not identify the level of protection of any coastal structures, and it does not validate whether or not a coastal structure exists. The current dataset contains data at one-mile spacing. The dataset does not include field-based reconnaissance or sediment/subsurface soil collection. The dataset can be downloaded from http://www.greatlakescoast.org/ under the "Technical Resources" section.

From the USACE shoreline dataset, the approximate shoreline along Cook and Lake Counties that is covered by this Great Lakes Coastal Flood Study totals 81.9 miles. Local stakeholders from Cook and Lake County indicated that the Illinois Lake Michigan shoreline is approximately 63 miles, as opposed to just over 80 miles. For the purposes of this report and the below tables, the total shoreline length from the USACE dataset has been used.

The shoreline classification information for Cook and Lake County is summarized in Tables 3 through 6, including shoreline types, land uses, coverage, and vegetation types, respectively.

Table 3. Summary of Shoreline Types

County	Total Shoreline (mile)	Artificial Shoreline (mile)	Boulders, Bedrock (mile)	Cohesive Clays and Silts (mile)	Sand (mile)	Shingles, Pebbles, Cobbles (Mile)
Cook County	51.1	46.7	--	--	4.3	--
Lake County	30.8	24.0	--	--	6.8	--

Source: USACE 2012, Lake Michigan Shoreline Classification

Table 4. Summary of Shoreline by Land Use

County	Total Shoreline (mile)	Commercial/ Industrial (mile)	Farm Land (mile)	Forested (mile)	High Density Residential (mile)	Low Density Residential (mile)	Moderate Density Residential (mile)	Park Land (mile)
Cook County	51.1	22.4	--	--	3.1		7.6	18.0
Lake County	30.8	12.3	--	--	0.6	0.6	10.4	6.8

Source: USACE 2012, Lake Michigan Shoreline Classification

Table 5. Summary of Shoreline Coverage

County	Total Shoreline (mile)	Bluff 2'-10' (mile)	Coastal Wetland	Dune 2'-10' (mile)	Flat Coast (mile)	High Bluff 10'+ (mile)	High Dune 10'+ (mile)
Cook County	51.1	31.1	--	14.4	5.6	--	--
Lake County	30.8	14.2	--	13.6	3.1	--	--

Source: USACE 2012, Lake Michigan Shoreline Classification

Table 6. Summary of Shoreline Vegetation Types

County	Total Shoreline (Mile)	High Density Shrubs/Trees (Mile)	Low Density Shrubs/Trees (Mile)	Manicured Lawn (Mile)	Moderate Density Shrubs/Trees (Mile)	None (Mile)	Unmaintained Non-Woody Vegetation (Mile)
Cook County	51.1	--	1.9	34.8	3.2	11.2	--
Lake County	30.8	5.6	1.9	10.4	8.6	4.3	--

Source: USACE 2012, Lake Michigan Shoreline Classification

I.IV.i.8 Stream Lines/Hydrograph

Stream lines for Cook and Lake County were available from USGS's National Hydrography Dataset (NHD). The NHD is a digital vector dataset used by Geographic Information Systems (GIS). It contains features such as lakes, ponds, streams, rivers, canals, dams and stream gages. The datasets are designed to be used in general mapping and in the analysis of surface-water systems. Data can be downloaded from http://nhd.usgs.gov/data.html.

Cook County stream lines can also be obtained from the Cook County and Incorporated Areas FIRM database, dated August 19, 2008. Lake County stream lines can be obtained from the Lake County and Incorporated Areas FIRM database, dated November 16, 2006.

I.IV.i.9 Topography, Bathymetry, and Oblique Imagery

New Data Collected for Great Lakes Coastal Flood Study

As part of the GLCFS, Light Detection and Ranging (LiDAR) was collected to develop topographic and bathymetric data along the Lake Michigan shoreline. Topography is the

configuration of natural and man-made features of a surface area and their relative position and elevations. Bathymetry is the underwater equivalent to topography.

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LiDAR is an optical remote sensing technology that can measure the distance to, or other properties of, a target by illuminating the target with light, often using pulses from a laser. A narrow laser beam can be used to map physical features with very high resolution. Downward-looking LIDAR instruments fitted to aircraft and satellites are used for surveying and mapping. LiDAR can be used to create DTM (Digital Terrain Models) and DEM (Digital Elevation Models), which is a digital model or 3-dimensional representation of the terrain's surface.

The LIDAR data for this study was collected within a 1500 meter buffer (500 meters inland and 1000 meters seaward of the land/water interface). Where water clarity permitted, data was collected to cover all federal navigation projects. Flight lines were flown along the channel alignment to ensure the best possible coverage of inlets and structures.

For quality control purposes, one cross line was used every 25 miles along shore or more frequently to ensure 90 percent of all planned lines within the area were crossed by a cross line. In areas of the coast where natural or artificial barriers prevent aircraft operations, the cross line(s) were collected at the nearest possible location to the required interval, but no closer than five (5) miles to an adjacent planned cross line. Overlapping lines and datasets were compared to each other and to cross lines and the differences calculated.

At the time this report was generated, the quality control process was not yet completed on the LiDAR dataset. However, as part of that process, the vertical difference between the LiDAR and ground truth data will be calculated. Ground truth refers to a process in which a pixel on a satellite image is compared to what is there in reality. This is especially important in order to relate LiDAR data to real features and materials on the ground. The collection of ground truth data enables calibration of the LiDAR data, and aids in the interpretation and analysis of what is being sensed. Using this process, all systematic errors will be identified and eliminated and remaining errors should have a normal distribution. Differences between a DEM created from the LiDAR data representing bare ground and the ground truth data will be unbiased and within +/-15 cm (RMSE[3]) in flat terrain and within +/-30 cm (RMSE) in hilly terrain. Horizontal positions will be accurate to +/- 1.5m (RMSE). Data will be processed to 2ft contours.

The processing of the bathymetric data for this study will be performed based on the strongest return of each LiDAR pulse, assuming this depth represents the bottom. Data will be processed to produce bottom reflectance data from the LiDAR data.

[3] Root-mean-square-error is a measure of the differences between values predicted by a model or an estimator and the values actually observed.

As of the date of this report, the LiDAR data is expected to become available in the spring of 2013 for this study area. There is a delay in the schedule to collect new bathymetric data; therefore, existing bathymetric data may be used for the transect-based coastal flood hazard analysis. Existing high-resolution bathymetric and topographic data is currently available at http://csc.noaa.gov .

As part of the GLCFS, USACE collected oblique imagery for the entire Great Lakes coastline in 2012. Oblique imagery is captured at an angle, as compared to an overhead view provided by orthophotos, and allows users a 3-dimensional view of landscape, buildings, and other features. This dataset may be useful to communities during emergency response, planning, and identification of shoreline types and obstructions; and management of assets, critical facilities, and public properties along the Lake Michigan shoreline. The oblique imagery is current available via a web-based browser at http://greatlakes.usace.army.mil/.

Other Data Available:
The NOAA Coastal Services Center, Digital Coast, hosts a variety of digital coastal data, including bathymetric and topographic data, and is located at http://www.csc.noaa.gov/digitalcoast .

I.IV.i.10 Transportation

The Bing Map service has been used as a basemap layer on the Discovery Map, and includes a transportation layer. For more information on Bing Map services and how they can be used in GIS, please visit http://www.arcgis.com/home and search for "Bing Maps".

Cook County transportation data was also obtained from the Cook County and Incorporated Areas FIRM database, dated August 19, 2008. Lake County transportation data was obtained from the Lake County and Incorporated Areas FIRM database, dated November 16, 2006.

I.IV.i.11 Watershed Boundaries

U.S. Geological Survey (USGS) Hydrologic Unit Code 8 (HUC-8) watershed boundaries were obtained from the National Atlas 2011 "Raw Data Download" (http://nationalatlas.gov/atlasftp.html).

Cook County contains portions of six HUC-8 watersheds, while Lake County contains portions of four HUC-8 waterhsheds. The subbasin names and HUC-8 codes are listed in Table 7.

Table 7. HUC-8 Watersheds in Cook and Lake County

County	HUC8	Subbasin
Cook	04040001	Little Calumet-Galien
Cook	04040002	Pike-Root
Cook	07120003	Chicago
Cook	07120004	Des Plaines
Cook	07120006	Upper Fox
Cook	07120007	Lower Fox
Lake	04040002	Pike-Root
Lake	07120003	Chicago
Lake	07120004	Des Plaines
Lake	07120006	Upper Fox

ii. Other Data and Information

The Illinois coast is what is geo-technically called a "cohesive coast". This means the upland to nearshore profile primarily consists of cohesive materials (glacial till). Any sand or gravel along the beaches and nearshore are a lens or veneer superimposed on the cohesive material.

During the last two centuries, Illinois' coast has undergone nearly a complete change, including hydrologic modifications, industrial impacts, transportation infrastructure construction, and skyscraper construction along the shoreline (Illinois Department of Natural Resources, 2012).

Lake County is a county in the northeastern corner of the State of Illinois, on the shore of Lake Michigan. According to the 2010 census, it has a population of 703,462, which is an increase from 644,356 in 2000. The county has a total area of approximately 1,369 square miles, of which 444 square miles is land and 925 square miles is water, much of it in Lake Michigan (U.S. Census Bureau, 2010). Additional information on Lake County can be found at www.lakecountyil.gov.

Cook County is also a county located in the northeastern portion of the State of Illinois and falls along the shore of Lake Michigan. According to the 2010 census, Cook County population is 5,194,675. The county has a total area of 1,635 square miles, of which 946 square miles is land and 689 square miles is water, most of it in Lake Michigan (U.S. Census Bureau, 2010). Additional information on Cook County can be found at www.cookcountygov.com.

I.IV.ii.1 Coastal Barrier Resources Systems

Coastal barriers are unique land forms that protect distinct aquatic habitats and serve as the mainland's first line of defense against damage from coastal storms and erosion. The Coastal Barrier Resources System (CBRS) defines a coastal barrier as a landform composed of unconsolidated shifting sand or other sedimentary material that is generally

long and narrow and entirely or almost entirely surrounded by water. They are sufficiently above normal tides so that they usually have dunes and terrestrial vegetation. The CBRS boundaries were downloaded from U.S. Fish and Wildlife Service http://www.fws.gov/CBRA/Maps/Data_Disclaimer_Shapefiles.html and are dated June 15, 2010.

No coastal barrier units were found along the Lake Michigan shoreline in Cook or Lake County.

I.IV.ii.2 Coastal Flood Protection Measures

Coastal structures along Lake Michigan will be reviewed in more detail during the engineering analysis portion of the Lake Michigan study and were not analyzed as part of this Discovery process. A summary of information collected regarding existing coastal structures and flood protection measures is described below.

FEMA's Midterm Levee Inventory (MLI) project compiled a database of structures that were designed to provide at least the minimum level of protection from the base flood level (1- percent-annual-chance flood). For this Discovery process, the November 2011 MLI Status Report published by FEMA was reviewed. The MLI Levee database shows no coastal levee segments in Cook or Lake County that provide protection from the 1-percent-annual-chance flood, however other flood protection measures may exist at the local level, as discussed below.

In 1987, the Chicago Inter-harbor breakwater wall was raised to prevent Lake Michigan flows from going into the Chicago River (Federal Emergency Management Agency, 2008). In the City of Highland Park (Lake County), breakwaters were built along the shoreline of Lake Michigan. In the Village of Lake Bluff and the City of Lake Forest (Lake County), sheet pilings, concrete walls, and other shoreline protective structures reduce erosion along the Lake Michigan shoreline (Federal Emergency Management Agency, 2006).

The Metropolitan Water Reclamation District (MWRD) noted via the Coastal Data Request Form that they have implemented a number of flood control projects in Cook County; however, those projects address flooding from sewers and riverine systems.

During the Discovery Meeting, City of Evanston identified a need for protection along Lake Shore Drive where wave action of up to 15 feet has caused road closures. A project has not yet been initiated.

The USACE Coastal & Hydraulics Laboratory (CHL), a member of the Engineer Research & Development Center (ERDC), has compiled an inventory of coastal structures called the Enterprise Coastal Inventory Database (ECID). The ECID application and database houses information on more than 900 coastal structures in the U.S. and uses a Google Earth interface for users to access information on the structures including project reports, aerial photographs, wave and water level and bathymetric data. The database and application are available at http://chl.erdc.usace.army.mil/chl.aspx?p=s&a=Projects;246 . These

maintained coastal structures protect harbors and shore-based infrastructure, provide beach and shoreline stability control, provide flood protection to varying degrees, and protect coastal communities, roadways and bridges, etc. These structures include seawalls, bulkheads, revetments, dikes and levees, breakwaters, groins, sills/perched beaches, and jetties and piers.

The major coastal structures along Lake Michigan found within Cook and Lake County are compiled in Table 8. It is important to note that these coastal structures do not necessarily protect areas from the 1-percent-annual-chance flood event. Many of these USACE coastal structures were built between 1860 and 1940. Low lake levels since the 1990's have accelerated deterioration of these navigation structures and USACE Detroit District launched an investigation to assess the effects of changes in Lake Michigan water levels on the performance and stability of these structures. An inventory of critical infrastructure protected by federally maintained navigation structures was conducted along with a condition assessment of the structures including an estimation of the risk associated with structure failure. Structures were rated on the following scale:

A – Failure Unlikely
B – Low Risk of Failure
C – Medium Risk of Failure
D – High Risk of Failure
F – Failed

Table 8 also provides the condition assessment for each of the structures listed.

Table 8. USACE Coastal Structure Inventory

State	Location	Coastal Structure	USACE Condition Assessment	Structure Length (feet)
IL	Chicago Harbor	Exterior Breakwater	D	5321
		Inner Breakwater		6578
		North Pier		960
		Shore Arm Extension		2250
		Southerly Extension		4944
IL	Waukegan Harbor	North Breakwater	C	859
		North Pier		1442
		Revetment		882
		South Pier		3211
IL	Calumet Harbor & River	U.S. North Pier	C	432
IN		Crib Breakwater		6714
		Steel Breakwater		5007

I.IV.ii.3 Community Assisted Visits

Statewide Community Assistance Visits (CAVs) are part of the evaluation and review process used by FEMA and local officials to ensure that each community adequately enforces local floodplain management regulations to remain in compliance with NFIP requirements. Generally, a CAV consists of a tour of the floodplain, an inspection of community permit files, and meetings with local appointed and elected officials. During a CAV, observations and investigations focus on identifying issues in various areas, such as the community's floodplain management regulations (ordinance), community administration and enforcement procedures, engineering or other issues within the FIRMs, other problems in the community's floodplain management, and problems with the biennial report data. Any administrative problems or potential violations identified during a CAV are documented in the CAV findings report. The community is notified and given the opportunity to correct those administrative procedures and remedy the violations to the maximum extent possible within established deadlines. The summary of CAV visits were extracted from FEMA's Community Information System (CIS) at https://portal.fema.gov in December 2012. Table 9 shows the most recent CAV date by community within this study area.

Table 9. Summary of CAVs in Cook and Lake County

County	Community	CID	CAV Date	FIRM Date
Cook	Chicago, City of	170074	12/31/1997	8/19/2008
Cook	Cook County (unincorporated areas)	170054	8/4/2011	8/19/2008
Cook	Evanston, City of	170090	6/30/2005	8/19/2008
Cook	Glencoe, Village of	170095	7/25/2007	8/19/2008
Cook	Kenilworth, Village of	170113	N/A	8/19/2008
Cook	Northfield, Village of	170133	2/6/2007	8/19/2008
Cook	Wilmette, Village of	170175	N/A	8/19/2008
Cook	Winnetka, Village of	170176	5/3/2012	8/19/2008
Lake	Beach Park, Village of	171022	5/4/2006	11/16/2006
Lake	Highland Park, City of	170367	5/23/2007	11/16/2006
Lake	Highwood, City of*	171033	N/A	11/16/2006
Lake	Lake Bluff, Village of	170373	3/26/2003	11/16/2006
Lake	Lake County (unincorporated areas)	170357	8/1/2006	11/16/2006
Lake	Lake Forest, City of	170374	7/24/2006	11/16/2006
Lake	North Chicago, City of	170384	3/16/1994	11/16/2006
Lake	Waukegan, City of	170397	8/25/2011	11/16/2006
Lake	Winthrop Harbor, Village of	170398	7/9/1997	11/16/2006
Lake	Zion, City of	170399	5/28/2003	11/16/2006
Cook	Winnetka, Village of	170176	5/3/2012	8/19/2008

*currently not participating in the NFIP

CID = Community Identification

CAV = Community Assisted Visit

I.IV.ii.4 Community Rating System

The Community Rating System (CRS) is a voluntary incentive program to provide flood Insurance premium discounts to NFIP-participating communities that take extra measures to manage floodplains above the minimum requirements. A point system is used to determine a CRS rating. The more measures a community takes to minimize or eliminate exposure to floods, the more CRS points are awarded and the higher the discount on flood insurance premiums. The list of CRS communities is available on FEMA's Website site at http://www.fema.gov/library/viewRecord.do?id=3629 , which was accessed in July 2012.

Lake County (unincorporated areas) participates in the CRS program, although no incorporated communities within this coastal study area in Lake County were found to participate. Neither Cook County nor coastal communities within Cook County participate in the CRS program. It should be noted that communities outside of Lake Michigan Cook and Lake County coastal communities may participate in the CRS program.

I.IV.ii.5 Comprehensive Plans and Other Plans Available

A comprehensive plan is a land use document providing framework and policy direction for land use decisions. Comprehensive plans usually include chapters detailing policy direction affecting land use, transportation, housing capital facilities, utilities, coastal and rural areas. Comprehensive plans identify where and how growth needs will be met.

The Lake County Regional Framework Plan is the countywide comprehensive plan for managing land use, directing growth, and protecting the natural environment. This plan was adopted by the Lake County Board in 2004 and can be found at http://www.lakecountyil.gov/Planning/PlanningandSupportServices/Pages/ComprehensivePlanning.aspx .

Lake County Comprehensive plans at the community level can be found at the Lake County Planning Resource Center, located in Libertyville, Illinois. Additional information can be accessed at www.lakecountyil.gov/Planning/PlanningandSupportServices/Pages/ResourceCenter.aspx

In Cook County, stakeholders identified via the Coastal Data Request Form that Metropolitan Chicago and Village of Winnetka have Comprehensive Plans in place.

I.IV.ii.6 Coordinated Needs Management Strategy (CNMS) and NFIP Mapping Needs

During FEMA's Flood Map Modernization program from 2003 to 2008, FEMA adhered to Procedure Memorandum No. 56 which states that, "Section 575 of the National Flood Insurance Program Reform Act of 1994 mandates that at least once every five years FEMA assess the need to review and update all floodplain areas and flood risk zones identified, delineated, or established under Section 1360 of the National Flood Insurance Act, as amended." This requirement was fulfilled through the Mapping Needs Assessment process. Other mechanisms such as the Mapping Needs Update Support System (MNUSS)

and scoping reports were used to capture information describing conditions on the FIRMs and the potential for a map update.

FEMA's Coordinated Needs Management Strategy (CNMS) was initiated through FEMA's Risk MAP program in 2009 to update the way FEMA organizes, stores, and analyzes flood hazard mapping needs information for communities. CNMS defines an approach and structure for the identification and management of flood hazard mapping needs that provides support to data-driven planning and the flood map update investment process in a geospatial environment. The goal is to identify areas where existing flood maps are not up to FEMA's mapping standards. More information about the CNMS can be found at http://www.fema.gov/library/viewRecord.do?id=4628 .

There are three classifications within the CNMS: "Valid," "Unverified," and "Unknown." New and updated studies (those with new hydrologic and hydraulic models) performed during FEMA's Map Modernization program were automatically determined to be "Valid" and the remaining studies went through a 17-element validation process with 7 critical and 10 secondary elements. Validation elements apply physical, climatological, and environmental factors to stream studies to determine validity. A stream study has to pass all of the critical elements and at least seven secondary elements to be classified as "Valid." The remaining streams are classified as "Unverified" or "Unknown". Studies for which flood hazard data are identified as having critical or significant secondary change characteristics are classified as "Unverified." Streams with a status of "Unknown" are those that have a study underway, will be evaluated in the future, or do not have sufficient information to determine whether they are "Valid" or "Unverified" (Federal Emergency Managment Agency, 2010).

Table 10 summarizes the draft results of the county-wide validation analysis obtained from CNMS in June 2012.

Table 10. CNMS Status for Cook and Lake County

County	FIPS	Unknown (stream miles)	Unverified (stream miles)	Valid (stream miles)	Total (stream miles)
Cook	17031	112	372	191	675
Lake	17097	115	182	137	434

I.IV.ii.7 Critical Facilities

Critical facilities are the facilities that can impact the delivery of vital services, cause greater damages to other sectors of a community, or put special populations at risk. Hospitals, roads, schools, and shelters are all examples of critical facilities that play a central role in disaster response and recovery. Understanding which facilities are exposed, and the degree of that exposure, can help reduce or eliminate service interruptions and

costly redevelopment. Incorporating this information into development planning helps communities get back on their feet faster.

Location of critical facilities with a county or community can be viewed from the NOAA Coastal Services Center, Critical Facilities Flood Exposure Tool at http://www.csc.noaa.gov/criticalfacilities/. According to the tool, both Cook and Lake County have various critical facilities within the effective floodplain, including fire stations, emergency operations centers, hazardous materials sites, police stations, schools, and waste water facilities.

The assessment of the flood risk posed to critical facilities is an important aspect of hazard mitigation plans. Additional information on critical facilities can be found in the Lake County hazard mitigation plan, but was not compiled as part of this report.

I.IV.ii.8 Critically Eroded Beaches and Beach Nourishment/Dune Replacement Projects

According to the Illinois Coastal Management Program Document, beach nourishment is used along many of the municipal beaches and, to a limited degree, along private lakeshore properties. The most rigorous beach nourishment is done at Illinois Beach State Park in Lake County (Illinois Department of Natural Resources, 2012).

During the Discovery Meeting, City of Evanston Water Utility identified an area east of the local water plant that needs to be returned to natural dune habitat. Funding for this area has not yet been obtained. In addition, the City of Highland Park noted an area of eroding bluffs as a potential area of concern.

I.IV.ii.9 Dams

The National Inventory of Dams (NID) is a congressionally authorized database that documents dams in the United States and its territories. The current NID, published in 2010, includes information on 84,000 dams that are more than 25 feet high, hold more than 50 acre-feet of water, or are considered a significant hazard if they fail. The NID is maintained and published by the USACE, in cooperation with the Association of State Dam Safety Officials, the States and territories, and Federal dam-regulating agencies. The database contains information about the dams' locations, sizes, purposes, types, last inspections, regulatory facts, and other technical data. The information contained in the NID is updated approximately every 2 years. The NID is available at the USACE Website https://nid.usace.army.mil/.

The Cook County and Incorporated Areas FIRM database, effective August 19, 2008, and Lake County and Incorporated Areas FIRM database, effective November 16, 2006, also contains the location of dams within the counties.

No dams were located in Lake County within the study area. Four dams were found to be located in Cook County, though likely just outside of this coastal study area. Three were in the unincorporated areas of Cook County and one in the City of Winnetka.

I.IV.ii.10 Declared Disasters

The FEMA Disaster Declarations Summary is a summarized dataset describing all federally declared disasters. This information begins with the first disaster declaration in 1953 and features all three disaster declaration types: major disaster, emergency, and fire management assistance. The dataset includes declared recovery programs and geographic areas (County data not available before 1964; fire management records are considered partial because of the historical nature of the dataset).

The list of FEMA's disaster declarations is available on the FEMA Website at http://www.fema.gov/data-feeds. Table 11 lists the major disaster declarations that have been declared in Cook and Lake Counties.

Table 11. Declared Disasters in Cook and Lake County

Declared County/Area	Disaster Number	Declaration Date	Incident Type	Description	Incident Begin Date	Incident End Date
Cook (County)	227	4/25/1967	Tornado	Tornadoes	4/25/1967	4/25/1967
Cook (County)	351	9/4/1972	Flood	Severe storms & flooding	9/4/1972	9/4/1972
Cook (County)	373	4/26/1973	Flood	Severe storms & flooding	4/26/1973	4/26/1973
Cook (County)	509	6/18/1976	Severe Storm(s)	Severe storms, tornadoes & flooding	6/18/1976	6/18/1976
Cook(County)	3068	1/16/1979	Snow	Blizzards & snowstorms	1/16/1979	1/16/1979
Cook (County)	643	6/30/1981	Severe Storm(s)	Severe storms, flooding & tornadoes	6/30/1981	6/30/1981
Cook (County)	776	10/7/1986	Flood	Severe storms & flooding	9/21/1986	10/15/1986
Cook (County)	798	8/21/1987	Flood	Severe storms & flooding	8/13/1987	8/30/1987
Cook (County)	997	7/9/1993	Flood	Severe storms & flooding	4/13/1993	10/22/1993
Cook (County)	1129	7/25/1996	Severe Storm(s)	Severe storms and flooding	7/17/1996	8/7/1996
Cook (County)	1188	9/17/1997	Severe Storm(s)	Severe storms and flooding	8/16/1997	8/17/1997
Cook (County)	3134	1/8/1999	Snow	Illinois-winter storm 1/1/99	1/1/1999	1/15/1999
Cook (County)	3161	1/17/2001	Snow	Illinois winter snow storms	12/11/2000	12/31/2000
Cook (County)	3230	9/7/2005	Hurricane	Hurricane Katrina evacuation*	8/29/2005	10/1/2005
Cook (County)	1729	9/25/2007	Severe Storm(s)	Severe storms and flooding	8/20/2007	8/31/2007
Cook (County)	1800	10/3/2008	Severe Storm(s)	Severe storms and flooding	9/13/2008	10/5/2008
Cook (County)	1935	8/19/2010	Severe Storm(s)	Severe storms and flooding	7/19/2010	8/7/2010

Table 11. Declared Disasters in Cook and Lake County

Declared County/Area	Disaster Number	Declaration Date	Incident Type	Description	Incident Begin Date	Incident End Date
Cook (County)	1960	3/17/2011	Snow	Severe winter storm and snowstorm	1/31/2011	2/3/2011
Lake (County)	194	4/25/1965	Tornado	Tornadoes, severe storms & flooding	4/25/1965	4/25/1965
Lake (County)	227	4/25/1967	Tornado	Tornadoes	4/25/1967	4/25/1967
Lake (County)	373	4/26/1973	Flood	Severe storms & flooding	4/26/1973	4/26/1973
Lake (County)	3068	1/16/1979	Snow	Blizzards & snowstorms	1/16/1979	1/16/1979
Lake (County)	776	10/7/1986	Flood	Severe storms & flooding	9/21/1986	10/15/1986
Lake (County)	997	7/9/1993	Flood	Severe storms & flooding	4/13/1993	10/22/1993
Lake (County)	1110	4/23/1996	Severe Storm(s)	Severe storms and tornadoes	4/18/1996	4/19/1996
Lake (County)	3134	1/8/1999	Snow	Illinois-winter storm 1/1/99	1/1/1999	1/15/1999
Lake (County)	3161	1/17/2001	Snow	Illinois winter snow storms	12/11/2000	12/31/2000
Lake (County)	3230	9/7/2005	Hurricane	Hurricane Katrina evacuation*	8/29/2005	10/1/2005
Lake (County)	1729	9/25/2007	Severe Storm(s)	Severe storms and flooding	8/20/2007	8/31/2007
Lake (County)	3283	3/13/2008	Snow	Record snow and near record snow	2/5/2008	2/6/2008
Lake (County)	1771	6/24/2008	Severe Storm(s)	Severe storms and flooding	6/1/2008	7/22/2008
Lake (County)	1960	3/17/2011	Snow	Severe winter storm and snowstorm	1/31/2011	2/3/2011

*Refers to the federal disaster aid that was made available to Michigan to supplement its efforts to assist evacuees from areas struck by Hurricane Katrina.

I.IV.ii.11 Flood Insurance Policies

A community's agreement to adopt and enforce floodplain management ordinances, particularly with respect to new construction, is an important element in making flood insurance available to home and business owners. For this Discovery project, data on flood insurance policies were also gathered.

Table 12 summarizes the numbers and premiums of insurance policies, the total coverage, and the numbers and dollar amounts of paid losses in the communities of Cook and Lake Counties. This data is not specific to Lake Michigan flooding, but rather all flood insurance policies and claims within the communities. The data were based on Community Summary Reports that were extracted from FEMA's CIS website (https://portal.fema.gov/famsVuWeb/home) in July 2012.

Table 12. Summary of Flood Insurance Policies and Claims for Cook and Lake County

County	Community	No. Policies	Total Premium	Total Coverage	Number of claims since 1978	Dollar ($) paid for claims since 1978
Cook	Chicago, City of	1156	$529,096	$225,071,100	521	$2,424,520
Cook	Cook County (unincorporated areas)	697	$719,411	$122,839,100	634	$6,072,562
Cook	Evanston, City of	51	$16,664	$11,326,000	12	$18,577
Cook	Glencoe, Village of	43	$17,926	$11,470,000	30	$89,185
Cook	Kenilworth, Village of	12	$5,325	$3,655,900	6	$0
Cook	Northfield, Village of	159	$218,307	$36,025,300	163	$1,260,347
Cook	Wilmette, Village of	98	$55,249	$27,868,200	109	$283,886
Cook	Winnetka, Village of	332	$598,204	$89,020,200	152	$1,174,044
Lake	Beach Park, Village of	33	$35,021	$6,416,700	12	$83,977
Lake	Highland Park, City of	160	$167,191	$44,347,000	101	$207,112
Lake	Highwood, City of*	--	--	--	--	--
Lake	Lake Bluff, Village of	11	$5,458	$3,252,500	0	$0
Lake	Lake County (unincorporated areas)	970	$937,038	$198,675,300	411	$2,250,531
Lake	Lake Forest, City of	77	$66,925	$20,550,300	31	$85,980
Lake	North Chicago, City of	10	$4,098	$1,579,000	7	$22,787
Lake	Waukegan, City of	71	$78,420	$15,347,000	32	$410,922
Lake	Winthrop Harbor, Village of	12	$6,940	$2,936,000	4	$21,534
Lake	Zion, City of	15	$13,637	$3,066,000	11	$36,698

*currently not participating in the NFIP
CID = Community Identification
Source: FEMA's CIS Summary Report "Insurance Reports"

I.IV.ii.12 Gage Data

The NOAA Coastal Services Center, Digital Coast, hosts a variety of digital coastal data, including gage data, and is located at http://www.csc.noaa.gov/digitalcoast .

Meteorological Stations:

The National Data Buoy Center (NDBC) is a part of the NOAA National Weather Service (NWS). NDBC designs, develops, operates, and maintains a network of data collecting buoys and coastal stations. NDBC provides hourly observations from a network of about 90 buoys and 60 Coastal Marine Automated Network (C-MAN) stations to help meet these needs. All stations measure wind speed, direction, and gust; atmospheric pressure; and air temperature. Water level is measured at selected stations. The historical and current data are available at the NDBC Website http://www.ndbc.noaa.gov/.

Table 13 shows the meteorological station identification number and location for the gages in the Lake Michigan's Cook and Lake County Coastal Flood Study areas.

Table 13. NOAA Meteorological Stations on Lake Michigan's Cook and Lake County

County	Station ID	Location	Owner	Data	Years of Historical Data
Cook County	FSTI2	Foster Ave, Chicago, IL (CPD)	Chicago Park District	Meteorological Observations	2011-Present
Cook County	45018	Montrose Ave Beach	Chicago Park District	Meteorological Observations	2011-Present
Cook County	OKSI2	Oak St, Chicago, IL (CPD)	Chicago Park District	Meteorological Observations	2011-Present
Cook County	45017	Oak St Beach	Chicago Park District	Meteorological Observations	2011
Cook County	CNII2	Northerly Island, IL	NWS Central Region	Meteorological Observations	2012
Cook County	JAKI2	63rd St, Chicago, IL (CPD)	Chicago Park District	Meteorological Observations	2011-Present
Cook County	CMTI2	Calumet, IL	NOAA's National Ocean Service (NOS)	Meteorological Observations	2004-Present
Cook County	45015	Calumet Beach	Chicago Park District	Meteorological Observations	2011-Present
Lake County	WHRI2	Waukegan Harbor, IL	National Weather Service (NWS) Central Region	Meteorological Observations	2006 - Present

In addition, the Great Lakes Environmental Research Laboratory is a part of NOAA focused on the Great Lakes. It maintains multiple datasets, including a collection of meteorological data for both the United States and Canada. The datasets can be found online at http://www.glerl.noaa.gov .

Stream Gages:

The USGS National Water Information System Web Interface (http://waterdata.usgs.gov/nwis, provides real-time data for any given stream gage location. Table 14 shows the gage identification numbers and locations for the gages in the study areas of Cook and Lake County. All USGS stream gage locations are shown on the Discovery Map.

Table 14. Stream Gage Stations in Cook and Lake Counties

County	Gage ID	Begin Date	End Date	Gage Location
Cook County	05536105	10/01/1989	9/30/1998	Near Chicago River at Albany Avenue at Chicago, IL
Lake County	05535070	9/1/1967	9/30/2000	Skokie River near Highland Park, IL
Lake County	05535000	10/1/1951	9/30/1999	Skokie River at Lake Forest, IL

Water Level Station:

NOAA's Center for Operational Oceanographic Products and Services (CO-OPS) maintains several water level stations along Lake Michigan. CO-OPS' primary motivation is the collection and dissemination of high quality and accurate measurements of lake level for scientific studies.

Great Lakes water levels constitute one of the longest high quality hydrometeorological data sets in North America with reference gage records beginning about 1860 with sporadic records back to the early 1800's. The station information and water level data are available at NOAA CO-OPS Website: http://tidesandcurrents.noaa.gov/station_retrieve.shtml?type=Great Lakes Water Level Data&state=LakeMichigan . The monthly high and low water level data from the year 1918 to 2011 at Lake Michigan are available at the USACE Website: http://www.lre.usace.army.mil/greatlakes/hh/greatlakeswaterlevels/.

Figure 2 depicts Historic Great Lakes Water Levels from 1918 to 2011 (U.S. Army Corps of Engineers, 2012).

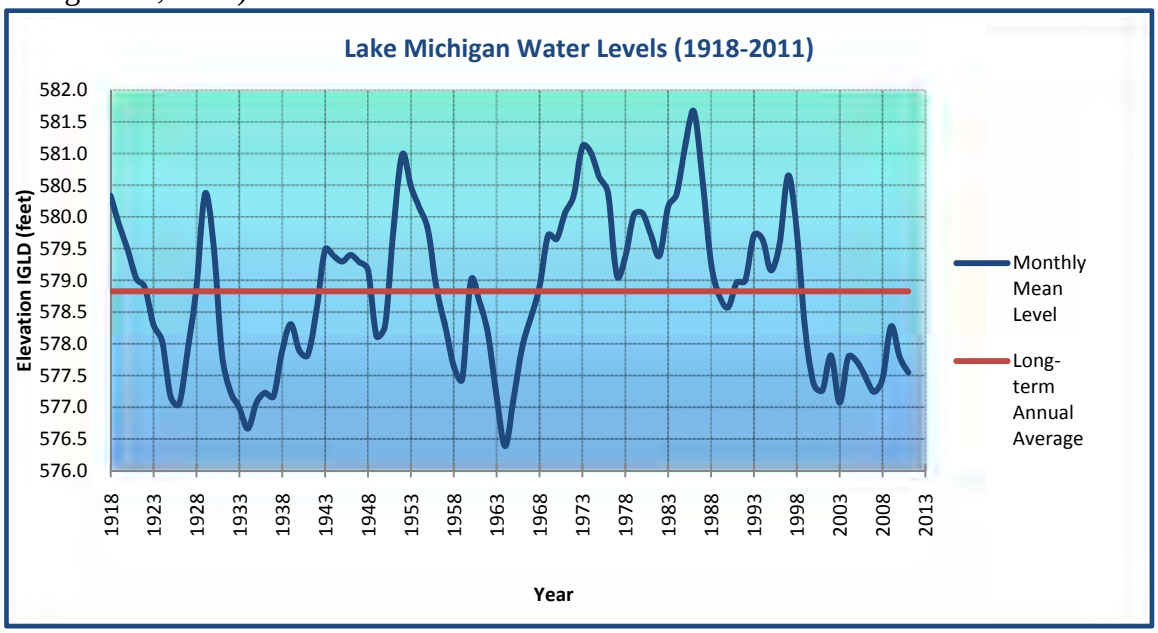

Figure 2: USACE Historic Great Lakes Water Level Data (1918-2011)

The Great Lakes Water Levels Report provides daily mean water levels of Lake Michigan for the past three months. The data are available at the USACE Website: http://www.lre.usace.army.mil/greatlakes/hh/greatlakeswaterlevels/currentconditions/great lakes waterlevels/.

Wave Gage/Buoy Stations:
The NDBC is a part of the NOAA NWS. NDBC designs, develops, operates, and maintains a network of data collecting buoys and coastal stations. NDBC provides hourly observations from a network of about 90 buoys and 60 C-MAN stations to help meet these needs. In addition to standard meteorological observation, all buoy stations, and some C MAN stations, measure sea surface temperature and wave height and period. Conductivity and water current are measured at selected stations. The historical and current data are available at NDBC Website http://www.ndbc.noaa.gov/.

I.IV.ii.13 Great Lakes Coastal Restoration Grants

The Great Lakes Restoration Initiative (GLRI) is a federal program that provides unprecedented funding for protection and restoration efforts on the five Great Lakes. State and local governments and non–profit organizations are eligible to receive grants from the U.S. Environmental Protection Agency (EPA) for projects addressing toxic substances, invasive species, non–point source pollution, habitat protection and restoration or accountability, monitoring, evaluation, communication and partnership building. Additional information can be found at http://www.epa.gov/glnpo/glri/index.html .

No information regarding the specific amount awarded to or types of projects initiated in the State of Illinois related to this initiative was compiled at the time this report was created. Illinois Department of Natural Resources (IDNR) has a webpage related to this initiative at http://dnr.state.il.us/glri/. Additional information can be found at the Great Lakes Restoration Initiative website at http://www.glri.us/

I.IV.ii.14 Hazard Mitigation Plans

Hazard Mitigation Plans are prepared to assist communities to reduce their risk to natural hazard events. The plans are used to develop strategies for risk reduction and to serve as a guide for all mitigation activities in the given county or community.

A local hazard mitigation plan is a long-term strategic/guidance document used by an entity to reduce future risk to life, property, and the economy in a community. A hazard mitigation plan has the following elements:

- A public participation process for bringing together diverse stakeholders in the jurisdiction(s) to provide an array of input into the plan
- A risk assessment to identify the hazards, determine the people and property subject to those hazards, and estimate vulnerability
- A mitigation strategy that contains goals, objectives, and an action plan to implement priority mitigation actions that reduce risk
- A maintenance process to ensure the plan is reviewed and updated
- An adoption requirement to ensure the support from participating jurisdictions

Local mitigation plans are required to be updated every 5 years to maintain eligibility for FEMA Hazard Mitigation Assistance (HMA) grant programs. The status of current hazard mitigation plans is shown in Table 15. The data was obtained from FEMA's Plan Approval Status Report based on Regional reports for the end of June 2012.

Table 15. Hazard Mitigation Plan Status for Cook and Lake County

County	Jurisdiction	Approval Date	Expiration Date
Cook	Chicago, City of	8/27/2007	8/27/2012
Lake	Lake County	1/5/2007	1/5/2012

Lake County All Natural Hazards Mitigation Plan was in the process of being updated and adopted by local communities during this Discovery process.

I.IV.ii.15 Hazard Mitigation Grant Program

After a major disaster declaration, the Hazard Mitigation Grant Program (HMGP) provides grants to states and local governments to implement long-term hazard mitigation measures. The purpose of the HMGP is to reduce the loss of life and property due to natural disasters and to enable mitigation measures to be implemented during the immediate recovery from a disaster.

A variety of hazard mitigation projects have been submitted for FEMA's HMGP. A summary of HMGP projects can be downloaded from https://explore.data.gov/catalog/raw.

I.IV.ii.16 Historical Flooding & High Water Marks

Coastal hazards are a serious threat to Illinois' shoreline communities and have historically been an area of high priority for Illinois.

The following tabulation lists significant flooding in Lake County and the elevations at each location along Lake Michigan. All elevations are referenced to the National Geodetic Vertical Datum of 1929 (NGVD29).

Table 16. Significant Flooding Elevations along Lake Michigan in Lake County

Location	April 1960 (ft NGVD29)	February 1966 (ft NGVD29)
North of Kellogg Ravine	578.9	577.9
North of Lake Michigan Tributary	578.8	578.1

From the Lake County 2006 FIS, the Lake Michigan shoreline in Lake County is subject to significant flooding and erosion caused by inundation and wind generated waves. Lake levels are affected by three categories of fluctuations: long term, seasonal, and short period. Long-term fluctuations are caused by an increase or decrease of precipitation over the lake. Flooding can occur along the shoreline when consecutive annual rainfalls are

higher than the mean annual precipitation (Federal Emergency Management Agency, 2006).

In Cook County, stakeholders identified that the majority of historical flooding and areas of flood concern were riverine.

No additional information specific to Lake Michigan flooding or high water marks was identified during this Discovery process. If local stakeholders have additional available high water mark data, historical flooding information, or historic flooding photographs they are encouraged to submit them to FEMA Region V Mitigation Division.

I.IV.ii.17 Land Use

Cook and Lake County local communities utilize land use planning to manage the development of land to help protect natural resources and economic and social conditions, and to ensure best land use options. Cook and Lake County communities along the Lake Michigan shoreline also have floodplain ordinances in place, which include regulation of development and construction within the effective floodplain.

I.IV.ii.18 Letters of Map Change

A Letter of Map Change (LOMC) is a letter that reflects an official revision to an effective NFIP map. LOMCs are issued in place of the physical revision and republication of the effective FIRM. LOMCs include completed cases of Letters of Map Amendment (LOMAs) and Letters of Map Revision (LOMRs), including LOMRs based on fill (LOMR-Fs), and conditional LOMRs. The lists of LOMC cases were obtained from the FEMA Mapping Information Platform Website (https://hazards.fema.gov/femaportal/wps/portal) in June 2012.

Table 17 lists the number of LOMCs in the project area per county. No Conditional LOMAs or Conditional LOMR-Fs were included. The LOMCs are shown on the Discovery Maps. Clusters of LOMCs indicate a need for updated maps.

Table 17. Summary of LOMC cases in Cook and Lake County

County	Number of Letters of Map Amendments	Number of Letters of Map Revisions – Based on Fill	Number of Letters of Map Revisions – Floodway Removal	Number of Letters of Map Revisions
Cook County	1599	198	83	TBD
Lake County	1123	141	35	TBD

I.IV.ii.19 Locally Identified Mitigation Actions

Table 18 lists the potential mitigation actions and strategies as pulled from the Lake County Hazard Mitigation Plan Update (Draft June 2012). City of Chicago Hazard Mitigation Plan actions and strategies were not obtained through this Discovery process. Note that actions listed may not be specific to coastal flooding.

Table 18. Hazard Mitigation Actions for Lake County

Name of Plan	County	Hazard Mitigation Action
Lake County All Natural Hazards Mitigation Plan, June 2012	Lake County	Improve natural hazards public information efforts
Lake County All Natural Hazards Mitigation Plan, June 2012	Lake County	SMC flood mitigation projects
Lake County All Natural Hazards Mitigation Plan, June 2012	Lake County	Development of flood stage maps
Lake County All Natural Hazards Mitigation Plan, June 2012	Lake County	Improve capacity of drainage systems
Lake County All Natural Hazards Mitigation Plan, June 2012	Lake County	Improve maintenance programs for drainage systems
Lake County All Natural Hazards Mitigation Plan, June 2012	Lake County	Improve building codes and building code enforcement.
Lake County All Natural Hazards Mitigation Plan, June 2012	Lake County	Reduce inflow and infiltration to protect against sewer backups.

During this Discovery process, Areas of Mitigation Interest (AoMI) were identified by the local stakeholders and should be considered for future mitigation projects, as well as incorporation into Hazard Mitigation Plan updates:

- City of Evanston noted two areas of concern on Northwestern University's campus and along Sheridan Road at the very south end of the county that have experienced significant erosion due to wave action. Erosion protection structures or strategies need to be identified.
- City of Evanston Water Utility identified an area east of the water plant that needs to be returned to natural dune habitat.
- City of Evanston has also identified a need for protection along Lake Shore Drive where wave action of up to 15 feet causes road closures.
- Abbot Labs in North Chicago may need additional wave protection.
- In the City of Highland Park, an area of eroding bluffs is a potential area of concern.
- City of Waukegan noted during the information exchange session process that sand migration caused by severe storms is a concern in their community. Movement of shoals due to storms often causes harbor closures and thus economic hardships for the community.

In the Illinois Coastal Management Program Document, efforts related to historical mitigation of coastal erosion were described. The document noted that hardening the shore with engineered structures is the most common practice. More recently, there has been greater interest in using "soft" solutions to retain sand volume, such as beach nourishment alone or in combination with hard structures to retain sand volume (Illinois Department of Natural Resources, 2012). Below is a list of mitigation activities related to erosion, as described in the Illinois Coastal Management Document:

Shore-Protection Structures:

- A variety of shore-protection structures occur along the Illinois coast such as groins, riprap, revetments, and breakwaters.

Lakefill:

- Filling in the shallow nearshore area to create new land and establish a more lakeward shoreline position has been used as a means of shore protection, particularly along the Chicago lakefront.

Beach Nourishment:

- Beach nourishment is used along many of the municipal beaches and, to a limited degree, along private lakeshore properties. The most rigorous beach nourishment is done at Illinois Beach State Park.

I.IV.ii.20 Ordinances

County and community regulations regarding development within known flood hazard areas can range from ordinances with minimum NFIP requirements to strong, pro-active ordinances that not only regulate and protect new and improved development in existing Special Flood Hazard Areas (SFHAs), but also seek to mitigate the growth of SFHAs caused by increased runoff from developed areas and the degradation of natural flood control areas, such as wetlands and forests.

Local regulations regarding development within known flood hazard areas can range from ordinances with minimum NFIP requirements to strong, pro-active ordinances that not only regulate and protect new and improved development in existing Special Flood Hazard Areas (SFHAs) but also seek to mitigate the growth of SFHAs caused by increased runoff from developed areas and the degradation of natural flood control areas, such as wetlands and forests.

Title 44 of the Code of Federal Regulations Sections 60.3(a)–(e) describes the NFIP floodplain ordinance levels and provides the minimum requirements for community participation in the NFIP. The proper ordinance level for each community is determined by the type of flooding that is present within the community. Ordinance levels are shown in the table below:

Ordinance Level	Description
A	Floodplains have not been identified
B	Floodplains with no base flood elevations (BFEs)
C	Floodplains with BFEs or coastal flooding with no high-hazard areas (Zone V)
D	Floodplains with BFEs and floodways
E	Coastal high-hazard areas identified, but no floodways
D & E	Both floodways and coastal high-hazard areas

Ordinance level information is shown in Table 19 for each community where data was available.

Table 19. Program Status and Ordinance Levels

County	Community	CID	Program Status	Ordinance Level
Cook	Chicago, City of	170074	Participating	D
Cook	Cook County (unincorporated areas)	170054	Participating	D
Cook	Evanston, City of	170090	Participating	D
Cook	Glencoe, Village of	170095	Participating	D
Cook	Kenilworth, Village of	170113	Participating	C
Cook	Northfield, Village of	170133	Participating	D
Cook	Wilmette, Village of	170175	Participating	D
Cook	Winnetka, Village of	170176	Participating	D
Lake	Beach Park, Village of	171022	Participating	N/A
Lake	Highland Park, City of	170367	Participating	D
Lake	Highwood, City of	171033	Not Participating	N/A
Lake	Lake Bluff, Village of	170373	Participating	N/A
Lake	Lake County (unincorporated areas)	170357	Participating	D
Lake	Lake Forest, City of	170374	Participating	D
Lake	North Chicago, City of	170384	Participating	N/A
Lake	Waukegan, City of	170397	Participating	N/A
Lake	Winthrop Harbor, Village of	170398	Participating	N/A
Lake	Zion, City of	170399	Participating	N/A

CID = Community Identification

I.IV.ii.21 Proposed Draft Transects

Transects are profiles along which coastal flooding analysis is performed. Transects are used to transform offshore conditions to the shoreline and are used to define coastal flood risks inland of the shoreline. They are placed to define representative profiles for a shoreline reach. The transect layout for coastal hazards analysis and subsequent floodplain delineation is determined by physical factors such as changes in topography, bathymetry, shoreline orientation, and land cover data, in addition to societal factors such as variations in development and density. The base maps listed earlier in this section (i.e. LiDAR, bathymetry) were reviewed, or will be reviewed once available, to determine revisions to the draft placement for hazard modeling transects along the Lake Michigan shoreline.

The originally proposed draft transect layout is shown on the draft Discovery Map for Cook and Lake County (Attachment C) and includes an identification number per transect. Note that these identification numbers will change as the draft transects are revised in the future.

Stakeholders were provided with the proposed draft transect shapefiles (GIS digital data) upon request, and the proposed draft transects (Attachment D) were also reviewed by stakeholders during and after the Discovery Meeting. Input from local officials was requested regarding the placement and the number of transects. The detailed comments collected can be found in Attachment E, Stakeholder Comments from Discovery Meeting. The ID numbers in this table correspond to the location of the comment, which is shown on the Final Discovery Maps in Appendix R of the basin-wide Lake Michigan Discovery Report and is not an attachment within this county-based report (Federal Emergency Managment Agency, 2013).

Below is a summary of the comments received and addressed for the proposed draft transects along the Lake Michigan shoreline in Cook and Lake County:

- Cook County: Stakeholders provided comments related to location of critical facilities and locations where wave action was significant along the shoreline, suggesting transects be moved to these locations. All comments (4 total) were able to be incorporated into the revised draft transect locations.
- Lake County: Stakeholders provided comments at or near originally placed transects related to facility expansions near the shore and areas that may need additional wave/flood protection. In addition, stakeholders suggested two locations for new transects. All comments were incorporated into the revised draft transect layout.

All comments were reviewed and incorporated where possible and a revised proposed draft transect layout was created. This revised transect layout can be found on the Final Discovery Maps in Appendix R of the Lake Michigan basin-wide report, and is not an attachment in this county-based report (Federal Emergency Managment Agency, 2013). It should be noted that these transects remain subject to change pending future coastal analysis.

I.IV.ii.22 Pre-Disaster Mitigation Grant Program

The Pre-Disaster Mitigation (PDM) program is a nation-wide competitive grant program that was created to assist State and local governments, including Indian Tribe governments, with the funding to implement cost-effective hazard mitigation activities prior to disasters. The intent of this program is to reduce overall risk to people and property, while also minimizing the cost of disaster recovery. Grants awarded during past fiscal years can be downloaded from the Pre-Disaster Mitigation Archives at http://www.fema.gov/pre-disaster-mitigation-grant-program/pre-disaster-mitigation-archives .

I.IV.ii.23 Public Assistance (PA) Grant Program

The mission FEMA's Public Assistance (PA) Grant Program is to provide assistance to State, Tribal and local governments, and certain types of Private Nonprofit organizations so that communities can quickly respond to and recover from declared disasters or emergencies.

Through the PA Program, FEMA provides supplemental Federal disaster grant assistance for debris removal, emergency protective measures, and the repair, replacement, or restoration of disaster-damaged, publicly owned facilities and the facilities of certain Private Non-Profit (PNP) organizations. The PA Program also encourages protection of these damaged facilities from future events by providing assistance for hazard mitigation measures during the recovery process.

Detailed project descriptions for completed PA projects can be downloaded from https://explore.data.gov/catalog/raw .

I.IV.ii.24 Regulatory Mapping

The effective mapping for the communities in Cook and Lake County study area is listed in Table 20.

Table 20. Effective Mapping Status of Cook and Lake County

County	Community	CID	FIRM Date	Program Status
Cook	Chicago, City of	170074	8/19/2008	Participating
Cook	Cook County (unincorporated areas)	170054	8/19/2008	Participating
Cook	Evanston, City of	170090	8/19/2008	Participating
Cook	Glencoe, Village of	170095	8/19/2008	Participating
Cook	Kenilworth, Village of	170113	8/19/2008	Participating
Cook	Northfield, Village of	170133	8/19/2008	Participating
Cook	Wilmette, Village of	170175	8/19/2008	Participating
Cook	Winnetka, Village of	170176	8/19/2008	Participating
Lake	Beach Park, Village of	171022	11/16/2006	Participating
Lake	Highland Park, City of	170367	11/16/2006	Participating
Lake	Highwood, City of	171033	11/16/2006	Not Participating
Lake	Lake Bluff, Village of	170373	11/16/2006	Participating
Lake	Lake County (unincorporated areas)	170357	11/16/2006	Participating
Lake	Lake Forest, City of	170374	11/16/2006	Participating
Lake	North Chicago, City of	170384	11/16/2006	Participating
Lake	Waukegan, City of	170397	11/16/2006	Participating
Lake	Winthrop Harbor, Village of	170398	11/16/2006	Participating
Lake	Zion, City of	170399	11/16/2006	Participating

CID = Community Identification

Effective FIRMs and FISs can be downloaded from FEMA's Map Service Center (MSC) at https://msc.fema.gov.

I.IV.ii.25 Repetitive Loss

A Repetitive Loss (RL) property is any insurable building for which two or more claims of more than $1,000 were paid by the NFIP within any rolling ten-year period, since 1978. A RL property may or may not be currently insured by the NFIP. There are currently over 122,000 repetitive loss properties nationwide.

Structures that flood frequently strain the National Flood Insurance Fund. In fact, the RL properties are the biggest draw on the Fund. FEMA has paid almost $3.5 billion dollars in claims for RL properties. RL properties not only increase the NFIPs annual losses and the need for borrowing funds from Congress, they drain funds needed to prepare for catastrophic events. Community leaders and residents are also concerned with the RL problem because residents' lives are disrupted and may be threatened by the continual flooding.

Over the years, there have been a number of efforts aimed at addressing repetitive losses. Depending on individual circumstances, appropriate mitigation measures commonly include elevating buildings above the level of the base flood, demolishing buildings, and removing buildings from the SFHA as part of a flood control project. Sometimes, mitigation takes the form of a local drainage-improvement project that meets NFIP standards and removes a property or properties from RL or Repetitive Loss Target Group (RLTG) status.

The Repetitive Flood Claims (RFC) grant program was authorized by the Bunning-Bereuter-Blumenauer Flood Insurance Reform Act of 2004 (P.L. 108–264), which amended the National Flood Insurance Act (NFIA) of 1968 (42 U.S.C. 4001, et al). Up to $10 million is available annually for FEMA to provide RFC funds to assist states and communities reduce flood damages to insured properties that have had one or more claims to the NFIP. Additional information on this program and other related programs is available at http://www.fema.gov/hazard-mitigation-assistance.

Repetitive losses were reviewed in FEMA's CIS "Community Disaster Detail – Flood Insurance" report, accessed December 2012. Table 21 details the total number of repetitive loss structures and total amount of repetitive loss payments in the coastal communities.

Table 21. Repetitive Loss

County	Community	CID	Total Repetitive Loss Structures	Total Repetitive Loss Payment
Cook	Chicago, City of	170074	32	$1,305,283
Cook	Cook County (unincorporated areas)	170054	72	$2,883,984
Cook	Evanston, City of	170090	0	$0
Cook	Glencoe, Village of	170095	2	$15,125
Cook	Kenilworth, Village of	170113	0	$0
Cook	Northfield, Village of	170133	9	$379,846

County	Community	CID	Total Repetitive Loss Structures	Total Repetitive Loss Payment
Cook	Wilmette, Village of	170175	10	$146,347
Cook	Winnetka, Village of	170176	8	$226,863
Lake	Beach Park, Village of	171022	2	$70,585
Lake	Highland Park, City of	170367	6	$65,787
Lake	Highwood, City of	171033	0	$0
Lake	Lake Bluff, Village of	170373	0	$0
Lake	Lake County (unincorporated areas)	170357	24	$537,175
Lake	Lake Forest, City of	170374	2	$18,359
Lake	North Chicago, City of	170384	0	$0
Lake	Waukegan, City of	170397	1	$8,142
Lake	Winthrop Harbor, Village of	170398	0	$0
Lake	Zion, City of	170399	0	$0

CID = community identification

I.IV.ii.26 Socio-Economic Analysis

In Cook County, from 2005-2010, the home health care services industry has the most employment growth with a total of 8,229 employees finding new jobs in the industry. The building equipment contractors industry experienced most substantial job loss during that same time period (U.S. Department of Labor, Bureau of Labor Statistics).

In Lake County, the elementary and secondary schools industry has grown the most from 2005-2010. The general medical and surgical hospitals industry witnessed the largest drop in employment (U.S. Department of Labor, Bureau of Labor Statistics).

In Cook County, in 2009, lake-related businesses provided 2.4 percent of the total jobs in the County. This accounted just under 58,000 jobs, $1 billion in wages, and $4 billion in goods & services. This represents an 11 percent decrease in lake jobs since 2005 (National Oceanic & Atmospheric Administration, 2009).

In Lake County, in 2009, lake-related businesses provided 1.8 percent of the total jobs in the County. This accounted for approximately 5,700 jobs, $154 million in wages, and $329 million in goods & services. This represents a 5 percent increase in lake jobs since 2005 (National Oceanic & Atmospheric Administration, 2009).

The more homes and people located in a floodplain, the greater the potential for harm from flooding. Impacts are likely to be even greater when additional risk factors (age, income, capabilities) are involved, since people at greatest flood risk may have difficulty evacuating or taking action to reduce potential damage. Cook County has approximately 3 percent of the population located within the floodplain, while Lake County has 12 percent (National Oceanic & Atmospheric Administration, 2009).

I.IV.ii.27 State-level Datasets, Programs, and Information

USGS Studies
USGS, under the Coastal and Marine Geology Program, initiated a 5-year study to document the timing and magnitude of prehistoric lake-level fluctuations, and to assess some of the important geologic processes responsible for severe erosion of the Illinois-Indiana shoreline. More information can be found on this study at http://pubs.usgs.gov/fs/lake-michigan/index.html, accessed July 2012.

Illinois Coastal Management Program
On January 31, 2012, the Illinois Coastal Management Program (ICMP) received Federal approval from the National Oceanic Atmospheric Administration (NOAA), Office of Ocean and Coastal Resources Management. Illinois joins a total of 29 coastal states and five island territories that have developed Coastal Zone Management (CZM) programs and represent more than 99.9 percent of the nation's 95,331 miles of oceanic and Great Lakes coastline (Illinois Department of Natural Resources, 2012).

The Illinois Coastal Zone Management Program Document, dated November 2011, contains additional information related to Great Lakes datasets, reports, programs, and grants. That report can be accessed by visiting http://www.dnr.illinois.gov/cmp/Pages/documentation.aspx (Illinois Department of Natural Resources, 2012)

V. Risk MAP Projects and Needs

This section provides information about the planned next steps for the Lake Michigan GLCFS, including information about the upcoming coastal analysis, potential for mitigation technical assistance within the project area, potential for changes in compliance as a result of the coastal flood study, future communications, and how unmet needs will be addressed.

i. Future Coastal Study

Information and data collected as part of this Discovery effort and provided in this report will be utilized in the upcoming coastal flood study for Lake Michigan.

A summary of the GLCFS project, as well as project updates, can be found at http://www.greatlakescoast.org/ under the “Great Lakes Coastal Analysis & Mapping” section.

The following work is expected to be performed for Lake Michigan as part of the GLCFS, pending congressional funding. The scope of work described in this section is therefore subject to change and may not be performed within all Lake Michigan communities.

All engineering and mapping analysis performed as part of this study will follow guidance provided within FEMA's Draft *Guidelines and Specifications for Coastal Studies Along the Great Lakes*, issued on May 8, 2012 (Federal Emergency Management Agency, 2012). The upcoming study is expected to include the following tasks: creation of bathymetric and topographic data, base map acquisition, coastal flood hazard analysis, and risk assessment product development. A summary is provided below and additional detail may be found in FEMA's basin-wide Lake Michigan Discovery Report (Federal Emergency Managment Agency, 2013).

Engineering & Mapping:
Coastal flood hazard analyses for the coastal communities of the United States located along the Lake Michigan shoreline will be performed. This analysis will include the creation of bathymetric and topographic map data inventory, base map acquisition, and coastal flood hazard analysis.

Draft coastal flood maps (or workmaps) will be produced for the study area. The workmaps will include the 1-percent- and 0.2-percent-annual chance flood hazard areas, Coastal High Hazard (VE Zone) and Coastal A Zone (AE Zone), Base Flood Elevations (BFEs), and Limit of Moderate Wave Action (LiMWA) boundary. The LiMWA boundary identifies the 1.5-foot wave height line and alerts property owners that although their property is in a Zone AE area, it may also be affected by waves 1.5 feet or higher. Communities will be provided with an opportunity to review the workmaps after the coastal analysis is complete and prior to FIRM production.

National Flood Insurance Program Integration:
Regulatory FIRM files may be updated through the FEMA's Physical Map Revision (PMR) process using the results from the work performed in the Engineering and Mapping task described above.

The final production and distribution of updated FIRMs will be dependent on the results of the coastal analysis, discussions with the communities, and congressional funding. Therefore, it cannot be identified at this time the exact communities that will receive updated FIRMs that may require adoption. The risk assessment products and their distribution, discussed below, are also dependent on the results of the coastal analysis and further community discussions and are subject to change.

Risk Assessment Products:
Depending on available data, results of coastal analysis, local needs identified, local partnerships, and fiscal year funding, the coastal flood risk products such as Flood Risk Map, Flood Risk Report, Changes Since Last FIRM (CSLF), Flood Depth and Analysis Grids, and Hazus-MH analyses may be generated for identified coastal communities. Optional Flood Risk Assessment products such as coastal wave height grids, erosion risk determination, and wave hazard severity area datasets have not yet been funded. Table 22 summarizes the products projected for the coastal communities in this project area.

Table 22. Potential Flood Risk Products

County	State	Flood Risk Map and Flood Risk Report	Changes Since Last FIRM	Flood Depth and Analysis Grids	Optional Flood Risk Assessment Products
Cook	IL	✓	✓	✓	TBD
Lake	IL	✓	-	✓	TBD

ii. Potential for Mitigation Assistance

As part of a Risk MAP project, Mitigation Planning Technical Assistance (MPTA) may be available to help communities plan for and reduce risks by providing communities with specialized assistance. MPTA includes risk assessment, mitigation planning, and traditional hazard identification (flood mapping) activities. Technical assistance through MTPA can be performed at any time during the hazard mitigation planning process.

Determining which communities receive MPTA is dependent on identification of a need, the willingness of a community to partner with FEMA, local resources and data availability, and federal funding availability. Unfortunately, not every community will be able to receive MPTA as part of a Risk MAP project. Forming a partnership between FEMA and a local community is an essential part of initiating a MPTA project. Assistance will be prioritized after all data and information is collected and assessed by FEMA in coordination with the local communities to determine where MPTA resources would be beneficial. Communities should alert FEMA of any resources that are available at the local level, and of actions they are interested in implementing in partnership with FEMA. Technical assistance activities should be based on the needs of the community and assist with already established capabilities.

Some technical assistance activities could include (but are not limited to):

- Advising in the creation of initial Hazard Mitigation Plans
- Advising in the update of existing Hazard Mitigation Plans
- Training to improve a community's capabilities for reducing risk
- Assistance in incorporating flood risk datasets and products into potential and effective community legislation, guidance, regulations, procedures, etc.
- Assistance with the creation, acquisition and incorporation of GIS data into potential and effective maps, planning mechanisms, emergency management procedures, etc.
- Facilitating the identification of data gaps and interpret technical data to identify risk reduction deficiencies that should be corrected.

Stakeholders noted during this Discovery process that the Lake County Hazard Mitigation Plan was recently updated. A Cook County Hazard Mitigation Plan was not identified during this Discovery process and the City of Chicago's Hazard Mitigation Plan recently expired in August of 2012. It is not known at this time if efforts are underway at the local

level to obtain funding to create and/or update these plans, so it is recommended additional discussion occur between FEMA and these stakeholders as this coastal flood study moves forward to see if MPTA would be an appropriate and beneficial supplemental option.

Continued discussion regarding FEMA partnership with local communities to assist in developing new mitigation actions and moving those actions forward will be essential as this coastal project moves forwards.

iii. Compliance

FEMA uses a number of tools to determine a community's compliance with the minimum regulations of the NFIP. Among them are Community Assisted Contacts (CACs), Community Assistance Visits (CAVs), the Letter of Map Change (LOMC) process, and Submit-for-Rates. These tools help assess a community's implementation of their flood damage reduction regulations and identify any floodplain management deficiencies and violations.

If administrative problems or potential violations are identified, the community will be notified and given the opportunity to correct those administrative procedures and remedy the violations to the maximum extent possible within established deadlines. FEMA or the state will work with the community to help them bring their program into compliance with NFIP requirements. In extreme cases where the community does not take action to bring itself into compliance, FEMA may initiate an enforcement action against the community.

After coastal analysis is completed for this study, communities may be faced with adopting new regulations related to coastal high hazard areas. An understanding of regulations associated with coastal areas will be important so that communities remain compliant. During this Discovery process, stakeholders were provided with information regarding NFIP requirements that are associated with coastal hazard zones, as well as information about new FEMA guidance related to moderate wave action.

These compliance topics, including coastal Special Flood Hazard Areas (SFHAs), building requirements in VE Zones, and Limit of Moderate Wave Action (LiMWA), are discussed in detail at http://www.greatlakescoast.org and in the basin-wide Lake Michigan Discovery Report (Federal Emergency Managment Agency, 2013).

iv. Communication

Throughout this Discovery process, community representatives and local stakeholders indicated the need to be kept informed about the results of Discovery, the upcoming coastal flood study, and opportunities for public input throughout the study process.

Throughout this study process, Federal, State, and local stakeholders will be kept informed via email, phone calls, letters, newsletters, and meetings as appropriate. A dedicated email

account was created (GreatLakesFloodStudy@STARR-Team.com) to distribute project information, meeting reminders, and summaries.

Stakeholder involvement will continue to be important through the remainder of the project. The GLCFS website http://www.greatlakescoast.org is an excellent resource where stakeholders can obtain the most update-to-date information about the status of the Great Lakes flood study projects, data collection, upcoming meetings, new technical reports, the latest methodologies, factsheets, and additional information.

FEMA encourages stakeholders to remain involved throughout the study process and will seek to identify partnership opportunities during the study process.

v. Unmet Needs

During this Discovery process, stakeholders provided FEMA with a wide variety of information. Some of the information, while valuable, may not be able to be utilized in the upcoming coastal study. In addition, some questions may be unresolved as of the end of this Discovery process. This section seeks to summarize those unmet needs and to provide the steps that may be taken to address them in the future.

During the Discovery Meetings and throughout the Discovery process, Lake Michigan stakeholders were concerned about what to expect in terms of extent of new SFHA boundaries, the possible introduction of VE Zones, the number of property owners who would be affected, and the additional NFIP requirements and flood insurance costs that may go along with a flood map revision. FEMA acknowledged this concern, adding that upcoming engineering and mapping tasks include the distribution of workmaps and other flood risk products designed to give local stakeholders an opportunity to review and comment on flood risk data before the data is carried into NFIP FIRM maps.

In addition, comments related to the proposed draft transects were provided during the Discovery Meeting by local stakeholders. Those comments were incorporated into an updated draft transect layout where possible. However, it should be noted that the draft transects proposed in this report remain subject to change pending future coastal analysis. Stakeholders will be made aware of revised transect locations via the future workmaps that will be provided to local communities for review as the study moves forward.

Also, stakeholders noted some areas of flood and erosion concern. Those areas that may benefit from future mitigation actions are listed below:

- City of Evanston noted two areas of concern on Northwestern University's campus and along Sheridan Road at the south end of Cook County that have experienced significant erosion due to wave action.
- City of Evanston Water Utility identified an area east of the water plant that needs to be returned to natural dune habitat.

- City of Evanston also identified a need for protection along Lake Shore Drive where wave action of up to 15 feet causes road closures.
- City of Highland Park identified an area of eroding bluffs as a potential area of concern.
- City of North Chicago noted the shoreline may need additional wave protection.

VI. Close

Federal, State, and local stakeholders that were involved in this Discovery process contributed valuable information about Lake Michigan, including information and data that may be utilized in the upcoming Lake Michigan coastal flood study. The data and opportunities presented in this report will be considered as the study process moves forward and will assist the project team as the Lake Michigan coastal flood study proceeds. FEMA encourages continued participation and engagement from stakeholders throughout this coastal flood study.

The ultimate goal of this Discovery process and the future coastal flood study is to provide updated flood risk information to local stakeholders and to increase awareness of those flood risks, which in turn leads to actions that reduce risk.

VII. References

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U.S. Army Corps of Engineers. (2012). Shoreline Feature Dataset. Detroit District, MI.

U.S. Census Bureau. (2010). *State and County Quick Facts*. Retrieved July 30, 2012, from http://quickfacts.census.gov

U.S. Department of Labor, Bureau of Labor Statistics. *Quarterly Census of Employment and Wages.*

VIII. Attachments

Discovery data and information, as well as this report and appendices, have been stored digitally on FEMA's Mapping Information Platform (MIP) Discovery Data Repository at J:\FEMA\DISCOVERY_DATA_REPOSITORY\R05_DATA\ and can be accessed by FEMA authorized users. The MIP can be accessed from https://hazards.fema.gov/. A username and password is required to access certain data within the MIP.

The final Discovery Report and appendices are also available for download from http://www.greatlakescoast.org/.

Attachments in this report include:

Attachment A. Coastal Data Request Form

Attachment B. Cook and Lake County Pre-Meeting Correspondence

Attachment C. Draft Discovery Maps

Attachment D. Proposed Draft Transect Figures

Attachment E. Stakeholder Comments from Discovery Meeting

Attachment F. Cook and Lake County Discovery Meeting Documents

Attachment G. Coastal Data Request Form Compilation

ATTACHMENT A

COASTAL DATA REQUEST FORM

U.S. Department of Homeland Security
536 S. Clark St. 6th Floor
Chicago, IL 60605
FEMA

Community Discovery Coastal Data Request Form

Thank you for taking the time to complete this questionnaire. We are interested in obtaining coastal-specific data for your community. It will provide important information to help FEMA understand coastal flood risk issues in your community and to work with you in increasing your community's resilience to coastal flooding through implementation of the Risk MAP program. In addition, this form can be used as a way to prepare for the upcoming Discovery Meeting, as the topics on this form will be discussed throughout the meeting.

Once you have completed the questionnaire, please return the form:

Via e-mail: GreatLakesFloodStudy@starr-team.com
By mail: Scott Banjavcic
CDM Smith/STARR
125 S. Wacker Drive, Suite 600
Chicago, IL 60606

Please provide as much information as possible. If you have any questions about the Discovery process or about completing this questionnaire, please contact:

Laura Keating, Laura.Keating@starr-team.com, 925-296-8048

Contact Information	
Community/Organization	
Name:	
Title:	
Address:	
E-mail:	
Phone:	
Contact Preference	☐ Email ☐ Phone ☐ Mail

U.S. Department of Homeland Security
536 S. Clark St. 6th Floor
Chicago, IL 60605
FEMA

Base Map Data		*Please select available data type*	
	Topography (e.g., LiDAR or contour data)	☐ *Hard copy*	☐ *Digital*
	Property information (e.g., Building footprints, parcel data, tax assessor's data)	☐ *Hard copy*	☐ *Digital*
Coastal Data			
	Coastal structures (e.g., seawalls, levees, jetties, groins, etc.)	☐ *Hard copy*	☐ *Digital*
	Coastal features (i.e., dunes and bluffs)	☐ *Hard copy*	☐ *Digital*
	Shoreline change data	☐ *Hard copy*	☐ *Digital*
	Locations of beach nourishment or dune restoration projects	☐ *Hard copy*	☐ *Digital*
	Areas of significant beach or dune erosion	☐ *Hard copy*	☐ *Digital*
	Mean high water	☐ *Hard copy*	☐ *Digital*
	Mean lake level	☐ *Hard copy*	☐ *Digital*
Other Data			
	Hydraulic structures (e.g., bridges, culverts, levees, dams) with inspection status, if available	☐ *Hard copy*	☐ *Digital*
	Elevated roads	☐ *Hard copy*	☐ *Digital*
	Critical facilities	☐ *Hard copy*	☐ *Digital*
	Other known hazards with geographical boundaries, i.e., landslide hazard areas, storm surge inundation zones, wildfire hazard areas, etc.	☐ *Hard copy*	☐ *Digital*
	Other relevant data	☐ *Hard copy*	☐ *Digital*

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536 S. Clark St. 6th Floor
Chicago, IL 60605
FEMA

Please provide the following information about the community:

Historical Flood Data		
Are you aware of any coastal flooding issues not represented on effective FIRMs:	☐ yes ☐ no	If yes, please explain and provide inundation areas of historic flooding events if available.
Risk Assessment		
Does your community have HAZUS-based loss estimates from average annualized loss?	☐ yes ☐ no	If yes, please describe:
Does your community have other risk assessment data?	☐ yes ☐ no	If yes, please describe:

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536 S. Clark St. 6th Floor
Chicago, IL 60605
FEMA

Flood Mitigation Information		
Does your community have a hazard mitigation plan?	☐ yes ☐ no	If yes, what is the status of the hazard mitigation plan? ☐ being reviewed ☐ it has been adopted ☐ it is currently being updated ☐ it is planned for updates
Does the plan reflect any coastal flood hazards?	☐ yes ☐ no	If yes, please explain:
Does the hazard mitigation plan indicate any data deficiencies for flood hazards that could be addressed through a flood study, especially near coastal zones?	☐ yes ☐ no	If yes, please explain:
Does your community have on-going mitigation projects, such as acquisition, elevation, flood control, soil stabilization, natural systems restoration, floodproofing, etc.	☐ yes ☐ no	If yes, please describe the projects and their locations:

Any specific coastal mitigation projects?	☐ yes ☐ no	If yes, please explain:
Does your community have experience with coastal flood disasters and flood disaster recovery?	☐ yes ☐ no	If yes, please explain:
Does your community coordinate floodplain management programs with programs for the management and planning of open space? If possible, any coastal specific?	☐ yes ☐ no	If yes, please explain:

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FEMA

Have you had any prior proactive mitigation actions and planning efforts that resulted in reduced losses? If possible, any coastal specific?	☐ yes ☐ no	If yes, please describe:
Has your community applied and granted Individual Assistance/Public Assistance grants for declared disasters?	☐ yes ☐ no	If yes, please describe and provide the locations of these grants projects:
Has your community applied for FEMA Hazard Mitigation Grants program or other mitigation funds (USACE, NRCS, USGS, state Hazard Mitigation officer, etc.) in the past?	☐ yes ☐ no	If yes, please describe and provide the locations of on-going/planned/finished grants projects/structures:

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Chicago, IL 60605
FEMA

How would you rank the community's ability to implement mitigation actions and to communicate flood risk to citizens?		☐ high ☐ medium ☐ low
Community Plans and Projects		
Does your community have a comprehensive plan?	☐ yes ☐ no	If you answered yes and you have a hazard mitigation plan, was your hazard mitigation plan coordinated with the comprehensive plan? ☐ yes ☐ no
Does your community's comprehensive plan have a special consideration for coastal areas?	☐ yes ☐ no	If yes, please explain elements/regulations that affect coastal area development.
Does your community have a coastal zone management plan?	☐ yes ☐ no	If yes, please provide a digital or hard copy of the plan.
Does your community have planning staff or a planning/zoning commission and other measures, such as ordinances, administrative plans, or other programs contributing to effective administration of floodplain zoning, building codes, open space preservation, and coastal zone management?	☐ yes ☐ no	If yes, please explain this group's role in floodplain management and provide examples of the types of programs in place:

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Chicago, IL 60605
FEMA

Does your community have areas of recent or planned development/re-development and areas of high growth or other natural land changes (e.g., wildfires or landslides):	☐ yes ☐ no	If yes, please describe:
Are there any locations of other ongoing studies or projects and studied areas that have been modified since the effective map and require an updated study (e.g., highway improvement, seawall improvement, etc.)	☐ yes ☐ no	If yes, please describe:
Any other comments/concerns based on local knowledge:		

ATTACHMENT B

COOK AND LAKE COUNTY PRE-MEETING CORRESPONDENCE

Core Stakeholder Pre-Meeting Documents

Information Exchange Session Documents

CEO/FPA Mailing List

Hard Copy Discovery Meeting Invitations

Email Discovery Meeting Invitation

Keating, Laura

From: Keating, Laura
Sent: Thursday, June 28, 2012 10:28 AM
To: Keating, Laura; 'Alan Lulloff'; 'D. Miller'; 'D. Nail'; 'David Bucaro'; 'David Knipe'; 'Eric Kuklewski'; 'Erin Maloney'; 'Gregory Main'; 'Gregory Mausolf'; 'Heather Stirratt'; Hillier, Timothy; 'Holly Davis'; 'Jan Crider'; 'Jennifer Day'; 'Julie Tochor'; 'Ken Hinterlong'; 'Laura Keating'; 'Laurie Smith-Kuypers'; 'M. Molnar'; 'Manuela Johnson'; 'Mary Weidel'; Randhawa, Jaspreet; 'Richard Foody'; 'S. Davis'; 'S. Morlock'; 'Susanne Davis'; 'Tambrete Phillps'; 'Tom Smith'; 'Wayne Lasch'; 'William Guertal'; 'Arlan Juhl'; 'D. Jyeskis'; 'Dan Injerd'; 'Frank Shockey'; 'James Casey'; 'Jared Owen'; 'Mark Kramer'; 'Paul Osman'; 'Rick Ackerson'; 'Ron Davis'; 'S. Silch'; 'Sally McConkey'; 'Suzanne Vermeer'; 'Thomas Bellino'; 'Zerek Schwartz'; 'Roberts, Stacey'; Denick, Roger (Roger.Denick@stantec.com); Caufield, Brian A.; 'Alan Lulloff'; 'D. Miller'; 'D. Nail'; 'David Bucaro'; 'David Knipe'; 'Eric Kuklewski'; 'Erin Maloney'; 'Gregory Main'; 'Gregory Mausolf'; 'Heather Stirratt'; 'Holly Davis'; 'Jan Crider'; 'Jennifer Day'; 'Julie Tochor'; 'Ken Hinterlong'; 'Laura Keating'; 'Laurie Smith-Kuypers'; 'M. Molnar'; 'Manuela Johnson'; 'Mary Weidel'; 'Richard Foody'; 'S. Davis'; 'S. Morlock'; 'Susanne Davis'; 'Tambrete Phillps'; 'Tom Smith'; 'Wayne Lasch'; 'William Guertal'; 'Arlan Juhl'; 'D. Jyeskis'; 'Dan Injerd'; 'Frank Shockey'; 'James Casey'; 'Jared Owen'; 'Mark Kramer'; 'Paul Osman'; 'Rick Ackerson'; 'Ron Davis'; 'S. Silch'; 'Sally McConkey'; 'Suzanne Vermeer'; 'Thomas Bellino'; 'Zerek Schwartz'; 'Roberts, Stacey'; Denick, Roger (Roger.Denick@stantec.com)
Cc: 'Luce, Janet K'; 'julie.tochor@accenture.com'; 'Tecic, Diane'; 'Luce, Janet K'; 'Tecic, Diane'
Subject: RE: FEMA Invitation to Lake Michigan Discovery Kickoff Meeting WebEx for Indiana and Illinois Core Stakeholders

Good Afternoon,

Thank you for attending the Illinois and Indiana Core Stakeholder Lake Michigan pre-Discovery Kickoff meeting last week.

If you were unable to attend, but would like to learn more about the Great Lakes Coastal Discovery process, please feel free to contact myself or Ken Hinterlong of FEMA Region V directly (Ken.Hinterlong@fema.dhs.gov).

Please find below and attached some information that was discussed during the call:

1. Contact Lists with local official (CEO/FPA) information for the IN/IL coastal communities and counties along Lake Michigan coastline. This is the list of local stakeholders who will receive a hard copy coastal Discovery Invitation, and will be invited to attend the Information Exchange Sessions. They will also be encouraged to identify and invite other local stakeholders who would benefit from the Discovery Meeting. **If you have specific contacts you would like us to add, please let me know.**


Region V Great Lakes CEO_FPA_C...


Region V Great Lakes CEO_FPA_C...

2. Great Lakes Coastal Flood Study Contact List. This is a comprehensive list of various Lake Michigan stakeholders, including technical resources, other federal agencies, associations, universities, etc. Utilizing this list as a basis, we will be providing an email invitation to the Discovery Meetings. Invitees may then forward on the invite to

others in the Great Lakes region. Please note, this list is being continually updated throughout the Great Lakes

Email_Invitations_G LCFS Lake M...

study process.

GLCFS_ LiMWA Fact Sheet.pdf

3. Limit of Moderate Wave Action (LiMWA) Fact Sheet

4. Draft transects (.shp) for the IN and IL shorelines.

Draft_Transects_La keMichigan_I...

Draft_Transects_La keMichigan_I...

These additional items will follow:

1. Meeting Minutes

2. Draft Data Request Form, which includes requests for coastal flood risk data and information from local officials. The collection of this information in advance of the Discovery Meetings will help us to cater our message during the meeting to local flood risk concerns and local flood risk reduction opportunities.

Thank you again for your participation in this process. We look forward to working closely with you in the upcoming months.

Laura

Laura Keating, CFM
STARR
direct/fax: 925-296-8048
cell: 617-319-2472

-----Original Appointment-----
From: Keating, Laura
Sent: Wednesday, June 06, 2012 5:25 PM
To: Keating, Laura; 'Alan Lulloff'; 'D. Miller'; 'D. Nail'; 'David Bucaro'; 'David Knipe'; 'Eric Kuklewski'; 'Erin Maloney'; 'Gregory Main'; 'Gregory Mausolf'; 'Heather Stirratt'; Hillier, Timothy; 'Holly Davis'; 'Jan Crider'; 'Jennifer Day'; 'Julie Tochor'; 'Ken Hinterlong'; 'Laura Keating'; 'Laurie Smith-Kuypers'; 'M. Molnar'; 'Manuela Johnson'; 'Mary Weidel'; Randhawa, Jaspreet; 'Richard Foody'; 'S. Davis'; 'S. Morlock'; 'Susanne Davis'; 'Tambrete Phillps'; 'Tom Smith'; 'Wayne Lasch'; 'William Guertal'; 'Arlan Juhl'; 'D. Jyeskis'; 'Dan Injerd'; 'Frank Shockey'; 'James Casey'; 'Jared Owen'; 'Mark Kramer'; 'Paul Osman'; 'Rick Ackerson'; 'Ron Davis'; 'S. Silch'; 'Sally McConkey'; 'Suzanne Vermeer'; 'Thomas Bellino'; 'Zerek Schwartz'; 'Roberts, Stacey'; Denick, Roger (Roger.Denick@stantec.com); Caufield, Brian A.; 'Alan Lulloff'; 'D. Miller'; 'D. Nail'; 'David Bucaro'; 'David Knipe'; 'Eric Kuklewski'; 'Erin Maloney'; 'Gregory Main'; 'Gregory Mausolf'; 'Heather Stirratt'; 'Holly Davis'; 'Jan Crider'; 'Jennifer Day'; 'Julie Tochor'; 'Ken Hinterlong'; 'Laura Keating'; 'Laurie Smith-Kuypers'; 'M. Molnar'; 'Manuela Johnson'; 'Mary Weidel'; 'Richard Foody'; 'S. Davis'; 'S. Morlock'; 'Susanne Davis'; 'Tambrete Phillps'; 'Tom Smith'; 'Wayne Lasch'; 'William Guertal'; 'Arlan Juhl'; 'D. Jyeskis'; 'Dan Injerd'; 'Frank Shockey'; 'James Casey'; 'Jared Owen'; 'Mark Kramer'; 'Paul Osman'; 'Rick Ackerson'; 'Ron Davis'; 'S. Silch'; 'Sally McConkey'; 'Suzanne Vermeer'; 'Thomas Bellino'; 'Zerek Schwartz'; 'Roberts, Stacey'; Denick, Roger (Roger.Denick@stantec.com)
Cc: 'Luce, Janet K'; 'julie.tochor@accenture.com'; 'Tecic, Diane'; 'Luce, Janet K'; 'julie.tochor@accenture.com'; 'Tecic, Diane'

Subject: FEMA Invitation to Lake Michigan Discovery Kickoff Meeting WebEx for Indiana and Illinois Core Stakeholders
When: Monday, June 18, 2012 11:00 AM-12:30 PM (GMT-08:00) Pacific Time (US & Canada).
Where: Call-in: 866-710-4609 Passcode: 9577577 and WebEx

Good Afternoon,

Please note the date and time change that was made to better accommodate schedules.

As you may know, the Federal Emergency Management Agency (FEMA), in cooperation with the U.S Army Corps of Engineers (USACE), the Association of State Floodplain Managers (ASFPM), and other partners, is conducting a comprehensive study of flood hazards for Lake Michigan coastal communities and along the United States shoreline in other areas of the Great Lakes system. Data from this study will eventually be used to revise Flood Insurance Rate Maps (FIRMs) for coastal communities throughout the region.

As part of the Great Lakes Coastal Flood Mapping and Outreach initiative, STARR (which stands for Strategic Alliance for Risk Reduction) has been contracted by FEMA to perform Discovery for all Lake Michigan coastal communities within Wisconsin, Illinois, Indiana, and Michigan. In addition, STARR will perform Discovery for St. Clair, Macomb and Wayne Counties along Lake St. Clair in Michigan. The Discovery process allows us to engage the communities and other local stakeholders to initiate risk discussions and increase visibility of flood risk information.

You have been identified as a Core Stakeholder for the Lake Michigan Discovery Project within the States of Indiana and Illinois. FEMA and STARR would like to hold a one-hour Kickoff Meeting via WebEx/conference call to introduce you to the Discovery process, including identifying Discovery goals and objectives for the Lake Michigan coastal communities in the States of Indiana and Illinois. We will also review the Lake Michigan Discovery Meeting Plan and discuss State-specific requirements.

You may have recently received a similar Discovery Kickoff Meeting invitation for the State of Wisconsin. Although some of the information presented at the other WebEx meetings will be the same, we will be discussing items specific to those counties in Indiana and Illinois and request that you attend this WebEx as well.

In the past few months, STARR may have also already contacted you to participate in a Lake Michigan Technical Workshops. Discovery is another part of the project, and we require your input and feedback to ensure study success. The community-based Discovery Meetings are held following Technical Workshops. Below are the tentative Lake Michigan Discovery Meeting dates for the States of Indiana and Illinois:

Indiana

Counties	Tentative Venue	Address	Date, Time
LaPorte Lake Porter	City Hall Commission Chambers	166 Lincolnway Valparaiso, IN 46383	Monday 09/10/2011 9:00 - 11:00 am

Illinois

Counties	Tentative Venue	Address	Date, Time
Cook Lake	TBD (Lake County)	TBD	Tentatively Wednesday 08/23/2012; 9:00 - 11:00 AM

Please let me know if the proposed time on this meeting invitation **(1pm central)** is acceptable. We are trying to determine the best time for everyone to participate in the Lake Michigan Discovery Kickoff Meeting WebEx for the States of Indiana and Illinois.

We look forward to discussing this project with you during the call. Please do not hesitate to contact me if you have any questions.

Sincerely,

Laura Keating, CFM
STARR

Laura.Keating@starr-team.com
Phone/fax: 925-296-8048

WebEx information:

Participant Join URL: http://e-meetings.verizonbusiness.com/nc/join.php?i=743676568&p=website&t=c

Meeting number: 743676568

Meeting passcode: website

Project Name:	Lake Michigan Discovery Project
Meeting:	Lake Michigan Pre-Discovery Kickoff Meeting for Illinois and Indiana Core Stakeholders
Date and Time:	Monday, June 18, 2012 at 1pm CDT
Place:	Call in: 866-710-4609 Passcode: 9577577 Participant Join URL: http://e-meetings.verizonbusiness.com/nc/join.php?i=743676568&p=website&t=c Meeting number: 743676568 Meeting passcode: website
Facilitator:	FEMA, STARR

Core Stakeholder Pre-Discovery Kickoff Meeting Agenda

Great Lakes Coastal Flood Study Overview

- Objectives
- Status
- Schedule

Hazard Mitigation Resources, Strategies, and Actions

- Introduction to Mitigation Action Form

Discovery Process Overview

- Scope and Schedule
- Discovery Meeting Outcomes
- Introduction to Discovery-phase Data Collection Activities
- Final Discovery Products

Coastal Focus – Information to be Aware Of

- Coastal Flood Risk Datasets
- Transects
- Erosion
- LiMWA
- Coastal Zone Mapping

Next Steps

- Community contact lists, draft transects, meeting minutes
- Stakeholder Input

Questions/Comments

Keating, Laura

Subject:	FEMA's Great Lakes Coastal Flood Study: Discovery Information Exchange Session for Lake and Cook County, IL
Location:	Call in number: 1-866-398-2885 Participant Code: 197462 and WebEx
Start:	Mon 8/6/2012 12:00 PM
End:	Mon 8/6/2012 1:00 PM
Show Time As:	Tentative
Recurrence:	(none)
Meeting Status:	Not yet responded
Organizer:	Keating, Laura
Required Attendees:	letterforthemayor@cityofchicago.org; william.scheriss@mwrd.org; etisdahl@cityofevanston.org; tjanetske@cityofevanston.org; paulh@villageofglencoe.org; christiv@villageofglencoe.org; fgs@board-advisors.com; scriezis@villageofkenilworth.org; gkramer@northfieldil.org; canningc@wilmette.com; mayerhoferb@vilmette.com; rbahan@winnetka.org; ssaunders@winnetka.org; pamela.cummings@cookcountyil.gov; robert.mack1@cookil.gov; dstolman@lakecountyil.gov; mwarner@lakecountyil.gov; john.hucker@villageofbeachpark.com; donna.perez@villageofbeachpark.com; nrotering@cityhpil.com; jpasquesi@cityhpil.com; cpecaro@cityofhighland.org; scott.hartman@cityofhighland.org; cweatherall@lakebluff.org; cowhey@cityoflakeforest.com; kanaparr@cityoflakeforest.com; joyceb@cityoflakeforest.com; leoroc@northchicago.org; joswhe@northchicago.org; r.sabonjian@ci.waukegan.il.us; ron.laubach@ci.waukegan.il.us; rloy@winthropharbor.com; chiefbrumlik@whpd.org; laneh@zion.il.us; ronc@zion.il.us; 'Hinterlong, Ken'; Randhawa, Jaspreet; Davis, Holly A (Holly.Davis@atkinsglobal.com); Roberts, Stacey; Vermeer, Suzanne

Good Morning,

You are receiving this meeting invitation because you have been identified as a ***Lake Michigan*** local community stakeholder. You should have recently received an invitation in the mail from the Federal Emergency Management Agency (FEMA), regarding the ***Great Lakes Coastal Flood Study*** effort, inviting you to attend a Discovery Meeting on August 23rd , as well as this information exchange session, scheduled for ***Monday, August 6th*** **at 2pm CT**. More information about the ***Great Lakes Coastal Flood Study*** may be found at http://www.greatlakescoast.org.

While the WebEx and call-in information was provided in the letter, I wanted to also provide this information to you via email to serve as a reminder. Below is the call-in and WebEx information:

Date/Time:	Monday, August 6, 2012; 2 - 3 pm CT
Link to WebEx:	http://e-meetings.verizonbusiness.com/nc/join.php
Meeting Number:	445288484
	*Please note there is no passcode for this WebEx – please leave that field blank
Call in number:	1-866-398-2885
Participant Code:	197462

This informal session will begin the process of learning about your available local coastal data, hazard mitigation strategies, and what the critical flooding issues are in your community so that we can then work with you to determine how to best utilize that information during FEMA's Great Lakes study. A data request form is attached to help facilitate the discussion. We encourage open discussions throughout this meeting and will use the information to better cater our upcoming Discovery Meeting as well. Attendees of this conference call, as well as the Discovery Meeting, may include, but certainly are not limited to, community leaders, emergency managers, GIS specialists, engineers, outreach specialists, and local planners.

We look forward to speaking with you on Monday, and appreciate your participation in this process. If you have any questions, or are not able to attend this session but would like to learn more, please do not hesitate to contact me directly. My information can be found below.

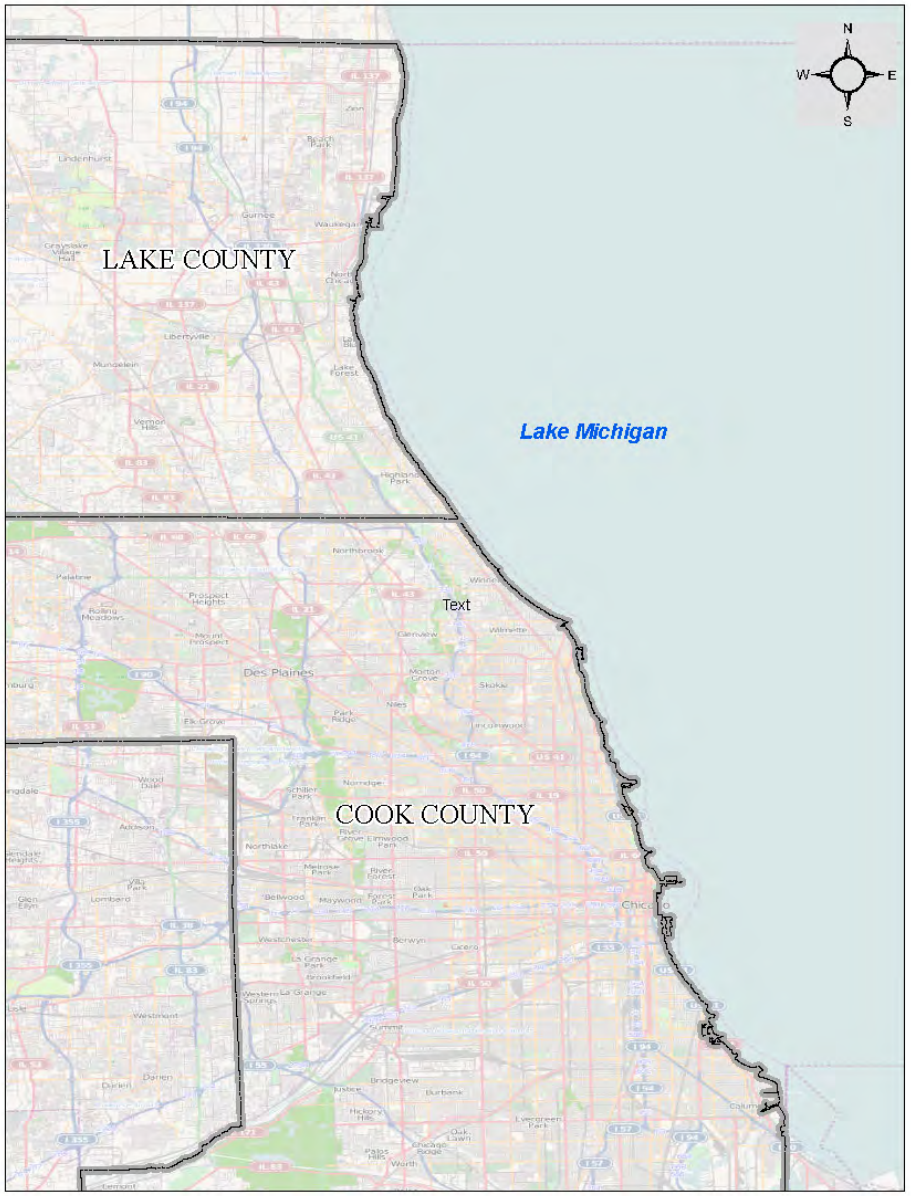
LAKE MICHIGAN
Discovery Coasta...

Thanks,
Laura

Laura Keating, CFM
STARR
direct/fax: 925-296-8048
cell: 617-319-2472

FEMA

Information Exchange Session for Lake Michigan Discovery



Lake and Cook Counties

August 6, 2012

2pm – 3pm

RiskMAP
Increasing Resilience Together

Great Lakes Coastal Flood Study

Lake Michigan Discovery Report Appendix I - Cook and Lake County

greatlakescoast.org

Purpose of Information Exchange

- Introduction to Risk MAP
- Introduction to Great Lakes Flood Study and Discovery
- Learn more about your areas of concern, coastal flood risk, and coastal mitigation
- Bring the right people to the table early
- Identify data gaps

Risk MAP (Mapping, Assessment, and Planning) Vision

Goals

1. Address gaps in flood hazard data
2. Increase risk awareness to encourage risk reduction
3. Risk-based Mitigation Planning resulting in risk reduction actions
4. Enhanced digital platform to improve communication and sharing of risk data
5. Align programs and develop synergies

Overview of Great Lakes Coastal Flood Study

FEMA

- Latest models, data, and technology
- Deliver updated flood maps and flood risk datasets
- Equip Federal Agencies, eight States and hundreds of coastal communities with data and planning tools to facilitate actions to enhance resiliency of the Great Lakes ecosystem

Hazard Mitigation Resources, Strategies & Actions

FEMA

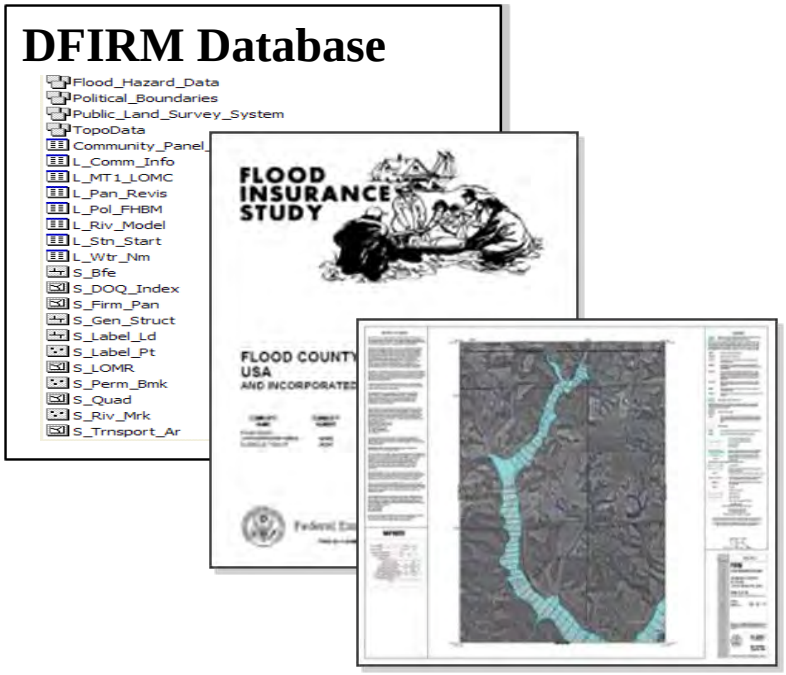
- Recent community hazard mitigation experiences?
  - *Public Works*
  - *Building Standards*
  - *Community Planning and Hazard Mitigation Plan Update*
  - *Communication Processes, GIS, etc.*
- New option to document ideas and actions through the FEMA Mitigation Action Form

Land Use Ordinances	Local Building Codes	Mitigation Projects	Community Identified Mitigation Programs	Management Best Practices
Zoning, Setbacks, Floodplain Management, etc.	IBC, IRC, Local Regulations, etc.	Acquisition, Elevation, Floodproofing, etc.		Integration of natural hazards into other planning mechanisms

Products and Datasets: Regulatory and Non-regulatory

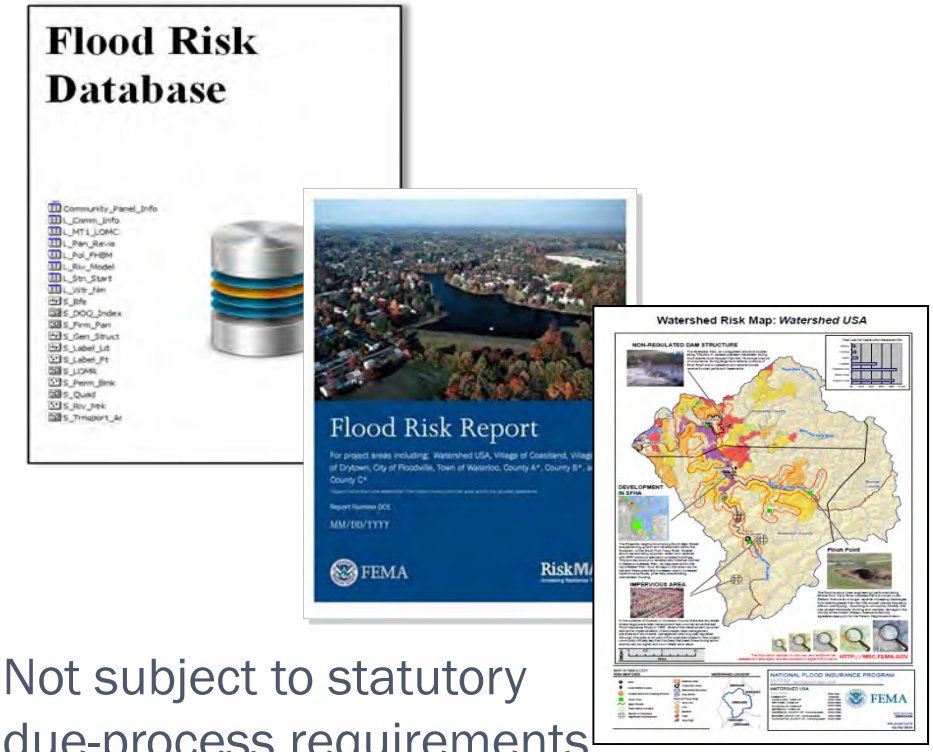
FEMA

Traditional Regulatory Products



Subject to statutory due-process requirements

Non-Regulatory Products



Not subject to statutory due-process requirements

RiskMAP
Increasing Resilience Together

Great Lakes Coastal Flood Study
greatlakescoast.org

Products and Datasets: Coastal Products in Development

Erosion

Red Lantern Restaurant, Lake Michigan, IN

Lake Levels

Lake Michigan Shoreline
Reference

Shoreline Feature Dataset

Upper Peninsula Shoreline
Reference

Risk MAP Overview: Shoreline Features Database

Shoreline Material
Sand
Cohesive
Cobble
Diamicton*
Shingle
Bedrock
Artificial

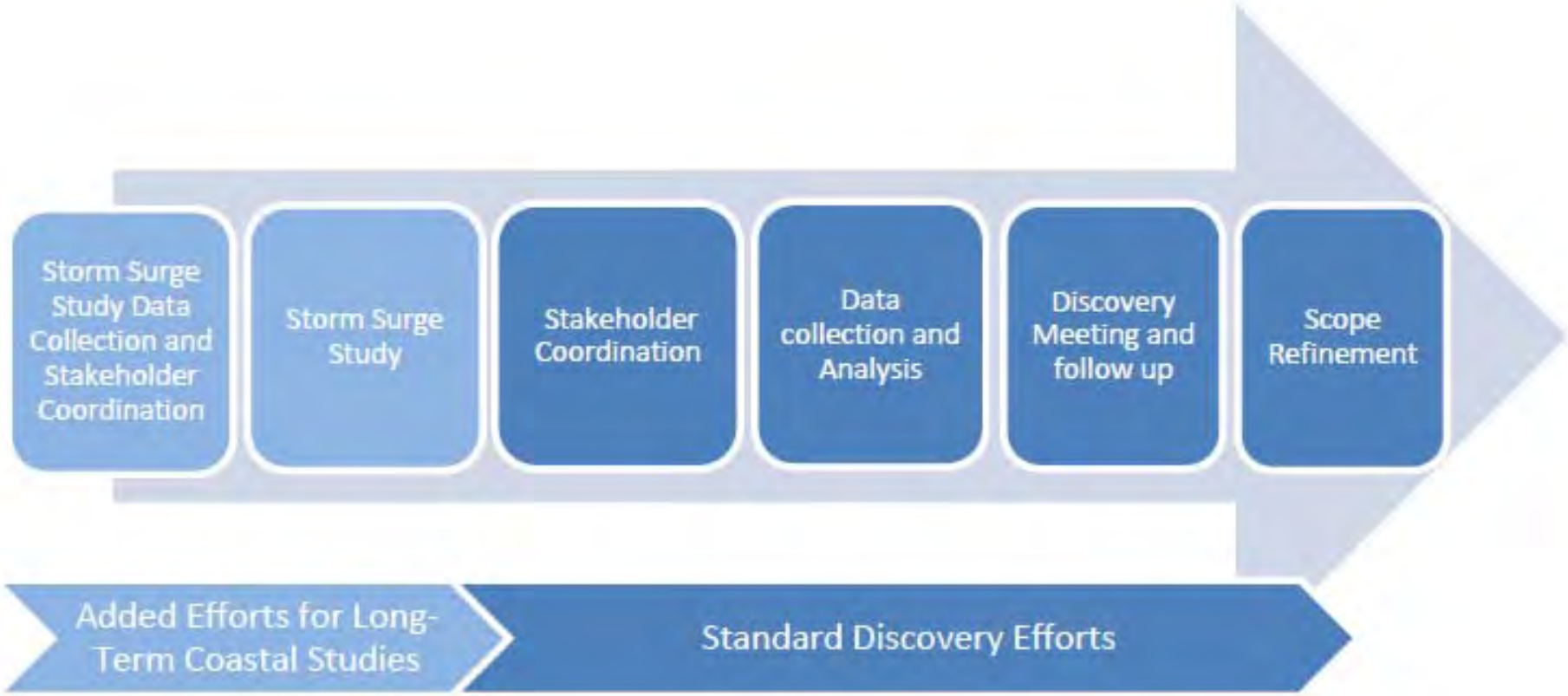
Primary Land Use
High Density Residential
Moderate Density Residential
Low Density Residential
Commercial/Industrial
Park Land
Farm Land
Forested

Primary Coast Type
High Dune, 10'+
Dune, 2' - 10'
High Bluff, 10'+
Bluff, 2' - 10'
Coastal Wetland
Flat Coast

Primary Vegetation
None
High Density Shrubs/Trees
Moderate Density Shrubs/Trees
Low Density Shrubs/Trees
Manicured Lawn
Native Vegetation

- Contains primary and secondary Land Use tables – same for coast type and vegetation.
- Current project collects data at one-mile spacing, for scoping and cost
- Current project does not include field-based reconnaissance or sediment/subsurface soils collection

Great Lakes Coastal Flood Study
Discovery Process Overview



Great Lakes Coastal Flood Study
Discovery Meeting

Discovery Meeting Venue	Discovery Meeting Address	Discovery Meeting Date, Time
Northwestern University The Norris Center – Louis South Room	1999 Campus Drive Evanston, IL 60208	Thursday, 8/23/2012; 9:00am - 11:00 am CT

Draft Discovery Meeting Agenda

- Why are we here?
- Coastal mapping and flood risk topics to be aware of
- How does this apply to my community?
  - NFIP compliance, hazard mitigation opportunities, and grant funding
- Interactive Session
  - Utilization of Coastal Flood Risk Products for Planning and Mitigation, Identification of Existing Local Coastal Data, View and Discuss Local Coastal Areas of Concern Using the Discovery Map, Discuss Mitigation Action Opportunities and Introduce the Mitigation Action Form
- Wrap Up

Draft Transect Map Station: Talk to technical staff about draft transects and view draft transects in GIS

Mitigation Resources, Strategies, and Actions Station: Talk with FEMA and State staff about areas of concern and potential mitigation actions to help reduce risk. Fill out Mitigation Action Form.

Great Lakes Coastal Flood Study
Discovery Products

- **Final Discovery Report**
  - Single, comprehensive report for all of Lake Michigan, with appendices for each coastal community by county
  - Includes pre-discovery data, meeting agenda, sign-in sheets, discussion topics, decisions made, etc.
- **Final Discovery Maps**
  - Including feedback from participants
  - Visual representation of meeting outcomes

Who Should Attend the Discovery Meeting?

- Community Officials
  - CEO and Floodplain Administrators (FPAs)
  - Planners, GIS Specialists, Engineers, Outreach Specialists, Emergency Managers, and Community Leaders
- State Representatives
  - State Hazard Mitigation Officer (SHMO), National Flood Insurance Program (NFIP) Coordinators, Cooperating Technical Partners (CTPs)
- Other Federal Agencies (NOAA, USACE, USGS)
- Regional Planning Agencies
- Great Lakes Organizations

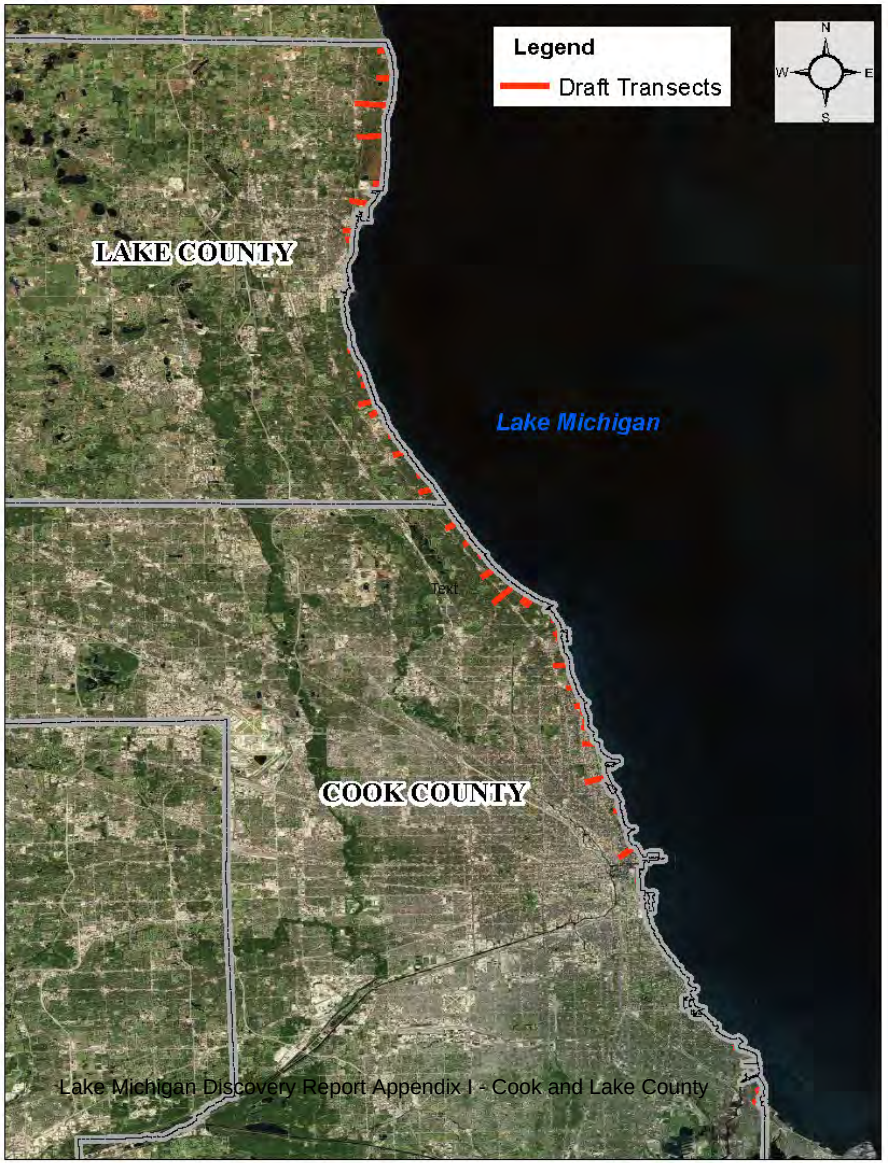
Great Lakes Coastal Flood Study
Discovery Study Area

FEMA

Lake Michigan coastal communities in Lake and Cook Counties:

Lake County
Beach Park
Highland Park
Highwood
Lake Bluff
Lake County
Lake Forest
North Chicago
Waukegan
Winthrop Harbor
Zion

Cook County
Chicago
Evanston
Glencoe
Kenilworth
Northfield
Wilmette
Winnetka

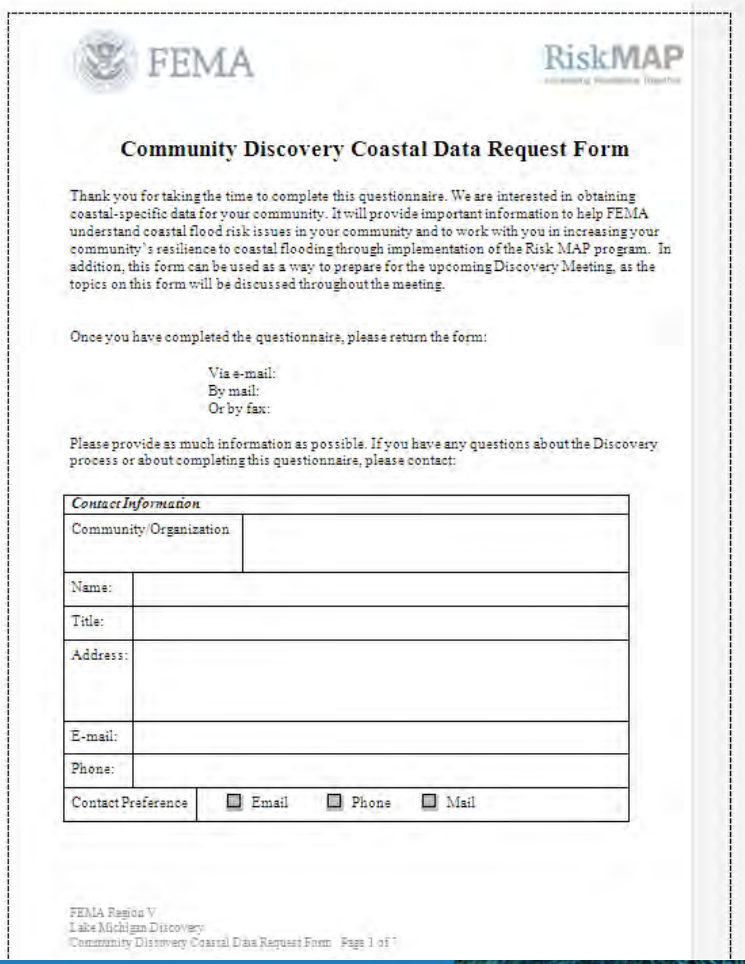


RiskMAP
Increasing Resilience Together

Great Lakes Coastal

Data Request Form Overview

- Contact Information
- Base Map Data
- Coastal Data
- Other Data
- Historic Flood Data
- Risk Assessment
- Flood Mitigation Information
- Community Plans and Projects
- Any Other Comments/ Concerns Based on Local Knowledge



FEMA RiskMAP

Community Discovery Coastal Data Request Form

Thank you for taking the time to complete this questionnaire. We are interested in obtaining coastal-specific data for your community. It will provide important information to help FEMA understand coastal flood risk issues in your community and to work with you in increasing your community's resilience to coastal flooding through implementation of the Risk MAP program. In addition, this form can be used as a way to prepare for the upcoming Discovery Meeting, as the topics on this form will be discussed throughout the meeting.

Once you have completed the questionnaire, please return the form:

Via e-mail:
By mail:
Or by fax:

Please provide as much information as possible. If you have any questions about the Discovery process or about completing this questionnaire, please contact:

Contact Information	
Community/Organization	
Name:	
Title:	
Address:	
E-mail:	
Phone:	
Contact Preference	☐ Email ☐ Phone ☐ Mail

FEMA Region V
Lake Michigan Discovery
Community Discovery Coastal Data Request Form Page 1 of 7

Review of Data Collected To Date

- Draft Transects
- Shoreline Classification Dataset
- Hazard Mitigation Plans
- Hazard Mitigation Grants Program (HMGP) projects
- Pre-Disaster Mitigation Program projects
- Declared Disasters
- Repetitive loss claims by community

Next Steps and Opportunity to Get Involved

- Assessment of data and information provided
- Identification of best practices:
  - Do you have an example of a local coastal mitigation best practice?
- Discovery meeting involvement:
  - Are you be interested in participating in Discovery Meeting facilitation?

THANK YOU FOR YOUR PARTICIPATION!

Who to Contact

- For more information: http://www.greatlakescoast.org/
- Send completed questionnaires to:
  - GreatLakesFloodStudy@starr-team.com
- FEMA Region V
  - Ken Hinterlong @ ken.hinterlong@fema.dhs.gov
  - Suzanne Vermeer @ Suzanne.Vermeer@fema.dhs.gov
- STARR
  - Laura Keating @ laura.keating@starr-team.com
  - Jaspreet Randhawa @ Jaspreet.Randhawa@starr-team.com

Questions?

Community CEO/FPA List - Cook County, Illinois - July 2012

County/City/Town/Village	First/ Last Name	Title	Address	Address	ZIP	Phone	Email
Chicago, City	Rahm Emanuel	Mayor	City Hall	121 North LaSalle, Chicago, IL	60602	(312) 744-3300	letterforthemayor@cityofchicago.org
	William Scheriss	Assistant Director of Engineering		111 East Erie Street, Chicago, IL	60611	(312) 751-3169	william.scheriss@mwrd.org
Evanston, City	Elizabeth B. Tisdahl	Mayor	City Hall	2100 Ridge Avenue, Evanston, IL	60201	847.866.2936	etisdahl@cityofevanston.org
	Tom Janetske	Fire Chief	Fire Station	909 Lake Street, Evanston, IL	60201	847.866.5935	tjanetske@cityofevanston.org
Glencoe, Village	Scott Feldman	Village President	Village Hall	675 Village Court, Glencoe, IL	60022	847.835.4114	paulh@villageofglencoe.org
	Christine Van Dornick, P.E.	Village Engineer (FPA)	Village Hall	675 Village Court, Glencoe, IL	60022	847.835.4111 x1119	christiv@villageofglencoe.org
Kenilworth, Village	Fred G. Steingraber	Village President	Village Hall	419 Richmond Road, Kenilworth, IL	60043	847.251.1666	fgs@board-advisors.com
	Susan Criezis	Community Development Director (FPA)	Village Hall	419 Richmond Road, Kenilworth, IL	60043	847.251.1666	scriezis@villageofkenilworth.org
Northfield, Village	Fred Gougler	Village President	Village Hall	361 Happ Road, Northfield, IL	60093	847.446.9200 x2231	
	Greg Kramer	Village Engineer	Village Hall	361 Happ Road, Northfield, IL	60093	847.784.3558	gkramer@northfieldil.org
Wilmette, Village	Christopher S. Canning	Village President	Village Hall	1200 Wilmette Avenue, Willmette, IL	60091	847.251.2700	canningc@wilmette.com
	Brigitte Mayerhofer	Director of Engineering (FPA)	Village Hall	1200 Wilmette Avenue, Willmette, IL	60091	847.853.7627	mayerhoferb@vilmette.com
Winnetka, Village	Jessica Tucker	Village President	Village Hall	510 Green Bay Road, Winnetka, IL	60093	847.501.6000	rbahan@winnetka.org
	Steve Sanuders	Director of Public Works and Village Engineer (FPA)	Village Hall	510 Green Bay Road, Winnetka, IL	60093	847.716.3534	ssaunders@winnetka.org
Cook, County	Toni Preckwinkle	County President		118 North Clark Street, Room 537, Chicago, IL	60602	(312) 603-4600	pamela.cummings@cookcountyil.gov
	Robert Mack	Drainage and Utilities Division Head		118 North Clark Street, Room 537, Chicago, IL	60602	312-603-1711	robert.mack1@cookil.gov
Cook County Department of Homeland Security and Emergency Management	Michael Masters	Executive Director		69 West Washington Street, Suite 2630, Chicago, IL	60602		

Community CEO/FPA List - Lake County, Illinois - July 2012

County/City/Town/Village	First/ Last Name	Title	Address	Address	ZIP	Phone	Email
Lake County	David Stolman	Chairperson, County Board		18 North County Street, 10th Floor, Waukegan, IL	60085-4351	847.377.2300	dstolman@lakecountyil.gov
	Michael D. Warner, P.E.	Executive Director of Stormwater Management Commission (FPA)		500 West Winchester Road, Suite 201, Libertyville, IL	60048	847.377.7705	mwarner@lakecountyil.gov
Beach Park, Village	John Hucker	Mayor Pro Tem	Village Hall	11270 Wadsworth Road, Beach Park, IL	60099	847.246.1770	john.hucker@villageofbeachpark.com
	Donna R. Perez	Permit Coordinator (FPA)	Village Hall	11270 Wadsworth Road, Beach Park, IL	60099	847.246.6006	donna.perez@villageofbeachpark.com
Highland Park, City	Nancy Rotering	Mayor	City Hall	1707 St. Johns Avenue, Highland Park, IL	60035	(847) 926-1009	nrotering@cityhpil.com
	Joe Pasquesi	Civil Engineer		1150 Half Day Road, Highland Park, IL	60035	(847) 926-1183	jpasquesi@cityhpil.com
Highwood, City	Charles Pecaro	Mayor	City Hall	17 Highwood Avenue, Highwood, IL	60040	847.432.1924 x232	cpecaro@cityofhighland.org
	Scott Hartman	City Manager and Zoning Administrator (FPA)	City Hall	17 Highwood Avenue, Highwood, IL	60040	847.432.1924	scott.hartman@cityofhighland.org
Lake Bluff, Village	Christine Letchinger	President, Board of Trustees	Village Hall	40 East Center Avenue, Lake Bluff, IL	60044	847.234.0774	cweatherall@lakebluff.org
	Gerald Nellessen	Building Code Supervisor	Village Hall	40 East Center Avenue, Lake Bluff, IL	60044		
	George Russell	Village Engineer	Village Hall	40 East Center Avenue, Lake Bluff, IL	60044		
Lake Forest, City	James J. Cowhey, Jr.	Mayor	City Hall	220 East Deerpath, Lake Forest, IL	60045	847.234.2600	cowhey@cityoflakeforest.com
	Ramesh Kanapareddy	City Engineer (FPA)	Municipal Services Building	800 North Field Drive, Lake Forest, IL	60045	847.810.3552	kanaparr@cityoflakeforest.com
	Brian Joyce	Engineering Assistant (FPA)	Municipal Services Building	800 North Field Drive, Lake Forest, IL	60045	847.810.3554	joyceb@cityoflakeforest.com
North Chicago, City	Leon Rockingham, Jr.	Mayor	City Hall	1850 Lewis Avenue, North Chicago, IL	60064	847.596.8610	leoroc@northchicago.org
	Josh Wheeler	City Engineer and Public Works Director	City Hall	1850 Lewis Avenue, North Chicago, IL	60064	847.596.8691	joswhe@northchicago.org
Waukegan, City	Robert G. Sabonjian	Mayor	City Hall	100 North Martin Luther King Jr. Avenue, Waukegan, IL	60085	847.599.2510	r.sabonjian@ci.waukegan.il.us
	Ron Laubach	City Engineer (FPA)	City Hall	100 North Martin Luther King Jr. Avenue, Waukegan, IL	60085	847.625.6827	ron.laubach@ci.waukegan.il.us
Winthrop Harbor, Village	Robert Loy	Mayor	Village Hall	830 Sheridan Road, Winthrop Harbor, IL	60096	847.872.3846 x248	rloy@winthropharbor.com
	Joel Brumlik	Chief of Police (FPA)	Village Hall	830 Sheridan Road, Winthrop Harbor, IL	60096	847.872.2131 x700	chiefbrumlik@whpd.org
Zion, City	Lane Harrison	Mayor	City Hall	2828 Sheridan Road, Zion, IL	60099	847.746.4000	laneh@zion.il.us
	Ron Colangelo	Director, Public Works Department (FPA)	City Hall	2828 Sheridan Road, Zion, IL	60099	847.746.4057	ronc@zion.il.us

NOTICE OF CORRECTION

An error was identified in the July 19, 2012 letter that you recently received, which was sent from STARR on behalf of Christine Stack, Division Director, Mitigation Division, Federal Emergency Management Agency (FEMA) Region V regarding the upcoming community meeting for Lake Michigan coastal flood risk. Please note the Discovery Meeting date is **Thursday,** August 23, 2012.

We apologize for this inconvenience and have enclosed a revised letter for your records.

U.S. Department of Homeland Security
536 S. Clark St. 6th Floor
Chicago, IL 60605

FEMA

August 3, 2012

The Honorable Rahm Emanuel
Mayor, City of Chicago
City Hall
121 North LaSalle
Chicago, Illinois 60602

CORRECTION TO INVITATION SENT ON JULY 19, 2012
Re: Invitation to Attend Community Meetings Regarding Lake Michigan Coastal Flood Risk

Dear Mayor Emanuel:

The Federal Emergency Management Agency (FEMA) is conducting a comprehensive study of flood hazards for Lake Michigan and the rest of the United States Great Lakes through FEMA's Risk Mapping, Assessment, and Planning (MAP) Program. Data from this study will eventually be used to convey coastal flood hazard risk through revised Flood Insurance Rate Maps (FIRMs), also known as regulatory products, and new risk planning and assessment products and datasets, also referred to as non-regulatory products and datasets. Please see enclosed Risk MAP Flood Risk Products Fact Sheet. More information about the Great Lakes Coastal Flood Study may be found at http://www.greatlakescoast.org.

The goal of Risk MAP is to support actions that make communities safer from flooding. The Risk MAP program wants to achieve continued improvement of flood hazard information for the National Flood Insurance Program (NFIP); to promote increased awareness and understanding of flood risk; to increase community engagement; and to identify and support actions that local stakeholders can take to reduce natural hazard risks. For additional information on the Risk MAP Program, please visit http://www.fema.gov/plan/prevent/fhm/rm_main.shtm.

The first phase of the Risk MAP process is Discovery. Through Discovery, input provided by communities will help FEMA to better understand local coastal flood risk data and needs, and characterize local conditions that contribute to coastal flood risk.

Your Discovery Meeting is scheduled to occur:

Date/Time:	**Thursday**, August 23, 2012; 9:00am - 11:00 am CT
Location:	Northwestern University, Norris University Center – Louis South Room
Address:	1999 Campus Drive Evanston, Illinois 60208

*Parking is available in the level 2 garage, located at Entrance "A" 1842 Campus Drive just off of Sheridan Road. Parking restrictions will be waived for this event.

Please save this date on your calendar. At the meeting, we will review the coastal flood risk data we have gathered to date and discuss your community's coastal floodplains, mitigation plan and projects, coastal flood risk concerns, and coastal floodplain management activities. This discussion will allow us to better identify your community's coastal flood hazard needs and subsequent Risk MAP regulatory and non-regulatory products and datasets that can be delivered during the Risk MAP project. We will also discuss how the coastal flood risks and needs are related to mapping, risk assessment, Hazard Mitigation planning, and grant programs available to eligible communities. To best facilitate this discussion, we would like to request your help in inviting community leaders, emergency managers, GIS specialists, engineers, outreach specialists, and local planners to the meeting. Please RSVP to FEMA's study contractor (STARR) Scott

Banjavcic at (312) 780-7755 or email to GreatLakesFloodStudy@starr-team.com no later than **August 10, 2012.** Please reference the Discovery Meeting date and time in your RSVP.

So that we can better prepare for the upcoming Discovery Meeting, we are asking local communities to participate in an Information Exchange conference call and WebEx. This call will provide an overview of FEMA's Risk MAP program and the Discovery process, and will allow us to review with you our request for the exchange of coastal flood risk and hazard mitigation data, and to learn more about your community's coastal flood hazard risks and needs, in advance of the Discovery Meeting. The partnership and exchange of data between FEMA, the State, and your community is vital to the success of identifying flood risks and needs that may impact your citizens.

The Information Exchange conference call is scheduled to occur:

Date/Time:	Monday, August 6, 2012; 2:00 - 3:00 pm CT
Link to WebEx:	http://e-meetings.verizonbusiness.com/nc/join.php
Meeting Number:	445288484
Call in number:	1-866-398-2885
Participant Code:	197462

If you or another community representative is unable to attend the Information Exchange conference call, we ask that you fill out and return the enclosed data request form by **August 10, 2012.** This is the same data request form that will be discussed during the conference call. The completed form can be sent to:

Via e-mail:	GreatLakesFloodStudy@starr-team.com
By mail:	Scott Banjavcic CDM Smith/STARR 125 S. Wacker Drive, Suite 600 Chicago, Illinois 60606

We look forward to working with you to reduce the risks associated with coastal flooding and increase your community's resiliency for the long term. To learn more about Discovery, please visit http://www.fema.gov/library and search keywords "Discovery brochure" or contact Ken Hinterlong, FEMA Region V Senior Engineer, at (312) 408-5529, or by email at ken.hinterlong@fema.dhs.gov . We look forward to discussing this with you during the Information Exchange call and/or seeing you at the upcoming Discovery Meeting.

Sincerely,

Christine Stack

Christine Stack
Division Director
Mitigation Division, FEMA Region V

Enclosures: Risk MAP Flood Risk Products Fact Sheet
Community Discovery Coastal Data Request Form

cc: William Scheriss, Assistant Director of Engineering, City of Chicago
Paul Osman, Illinois Department of Natural Resources
Arlan Juhl, Illinois Department of Natural Resources
Ron Davis, Illinois Emergency Management Agency

U.S. Department of Homeland Security
536 S. Clark St. 6th Floor
Chicago, IL 60605

FEMA

August 3, 2012

The Honorable Elizabeth Tisdahl
Mayor, City of Evanston
City Hall
2100 Ridge Avenue
Evanston, Illinois 60201

CORRECTION TO INVITATION SENT ON JULY 19, 2012
Re: Invitation to Attend Community Meetings Regarding Lake Michigan Coastal Flood Risk

Dear Mayor Tisdahl:

The Federal Emergency Management Agency (FEMA) is conducting a comprehensive study of flood hazards for Lake Michigan and the rest of the United States Great Lakes through FEMA's Risk Mapping, Assessment, and Planning (MAP) Program. Data from this study will eventually be used to convey coastal flood hazard risk through revised Flood Insurance Rate Maps (FIRMs), also known as regulatory products, and new risk planning and assessment products and datasets, also referred to as non-regulatory products and datasets. Please see enclosed Risk MAP Flood Risk Products Fact Sheet. More information about the Great Lakes Coastal Flood Study may be found at http://www.greatlakescoast.org.

The goal of Risk MAP is to support actions that make communities safer from flooding. The Risk MAP program wants to achieve continued improvement of flood hazard information for the National Flood Insurance Program (NFIP); to promote increased awareness and understanding of flood risk; to increase community engagement; and to identify and support actions that local stakeholders can take to reduce natural hazard risks. For additional information on the Risk MAP Program, please visit http://www.fema.gov/plan/prevent/fhm/rm_main.shtm.

The first phase of the Risk MAP process is Discovery. Through Discovery, input provided by communities will help FEMA to better understand local coastal flood risk data and needs, and characterize local conditions that contribute to coastal flood risk.

Your Discovery Meeting is scheduled to occur:

Date/Time:	**Thursday**, August 23, 2012; 9:00am - 11:00 am CT
Location:	Northwestern University, Norris University Center – Louis South Room
Address:	1999 Campus Drive Evanston, Illinois 60208

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Please save this date on your calendar. At the meeting, we will review the coastal flood risk data we have gathered to date and discuss your community's coastal floodplains, mitigation plan and projects, coastal flood risk concerns, and coastal floodplain management activities. This discussion will allow us to better identify your community's coastal flood hazard needs and subsequent Risk MAP regulatory and non-regulatory products and datasets that can be delivered during the Risk MAP project. We will also discuss how the coastal flood risks and needs are related to mapping, risk assessment, Hazard Mitigation planning, and grant programs available to eligible communities. To best facilitate this discussion, we would like to request your help in inviting community leaders, emergency managers, GIS specialists, engineers, outreach

specialists, and local planners to the meeting. Please RSVP to FEMA's study contractor (STARR) Scott Banjavcic at (312) 780-7755 or email to GreatLakesFloodStudy@starr-team.com no later than **August 10, 2012.** Please reference the Discovery Meeting date and time in your RSVP.

So that we can better prepare for the upcoming Discovery Meeting, we are asking local communities to participate in an Information Exchange conference call and WebEx. This call will provide an overview of FEMA's Risk MAP program and the Discovery process, and will allow us to review with you our request for the exchange of coastal flood risk and hazard mitigation data, and to learn more about your community's coastal flood hazard risks and needs, in advance of the Discovery Meeting. The partnership and exchange of data between FEMA, the State, and your community is vital to the success of identifying flood risks and needs that may impact your citizens.

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By mail:	Scott Banjavcic CDM Smith/STARR 125 S. Wacker Drive, Suite 600 Chicago, Illinois 60606

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Sincerely,

Christine Stack

Christine Stack
Division Director
Mitigation Division, FEMA Region V

Enclosures: Risk MAP Flood Risk Products Fact Sheet
Community Discovery Coastal Data Request Form

cc: Tom Janetske, Fire Chief, City of Evanston
Paul Osman, Illinois Department of Natural Resources
Arlan Juhl, Illinois Department of Natural Resources
Ron Davis, Illinois Emergency Management Agency

U.S. Department of Homeland Security
536 S. Clark St. 6th Floor
Chicago, IL 60605

FEMA

August 3, 2012

Ms. Toni Preckwinkle
County President, Cook County
118 North Clark Street
Room 537
Chicago, Illinois 60602

CORRECTION TO INVITATION SENT ON JULY 19, 2012
Re: Invitation to Attend Community Meetings Regarding Lake Michigan Coastal Flood Risk

Dear Ms. Preckwinkle:

The Federal Emergency Management Agency (FEMA) is conducting a comprehensive study of flood hazards for Lake Michigan and the rest of the United States Great Lakes through FEMA's Risk Mapping, Assessment, and Planning (MAP) Program. Data from this study will eventually be used to convey coastal flood hazard risk through revised Flood Insurance Rate Maps (FIRMs), also known as regulatory products, and new risk planning and assessment products and datasets, also referred to as non-regulatory products and datasets. Please see enclosed Risk MAP Flood Risk Products Fact Sheet. More information about the Great Lakes Coastal Flood Study may be found at http://www.greatlakescoast.org.

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Banjavcic at (312) 780-7755 or email to GreatLakesFloodStudy@starr-team.com no later than **August 10, 2012.** Please reference the Discovery Meeting date and time in your RSVP.

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By mail:	Scott Banjavcic CDM Smith/STARR 125 S. Wacker Drive, Suite 600 Chicago, Illinois 60606

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Sincerely,

Christine Stack

Christine Stack
Division Director
Mitigation Division, FEMA Region V

Enclosures: Risk MAP Flood Risk Products Fact Sheet
Community Discovery Coastal Data Request Form

cc: Bob Mack, Cook County Highway Department
Michael Masters, Cook County Department of Homeland Security and Emergency Management
Paul Osman, Illinois Department of Natural Resources
Arlan Juhl, Illinois Department of Natural Resources
Ron Davis, Illinois Emergency Management Agency

U.S. Department of Homeland Security
536 S. Clark St. 6th Floor
Chicago, IL 60605

FEMA

August 3, 2012

Mr. Scott Feldman
Village President, Village of Glencoe
Village Hall
675 Village Court
Glencoe, Illinois 60022

CORRECTION TO INVITATION SENT ON JULY 19, 2012
Re: Invitation to Attend Community Meetings Regarding Lake Michigan Coastal Flood Risk

Dear Mr. Feldman:

The Federal Emergency Management Agency (FEMA) is conducting a comprehensive study of flood hazards for Lake Michigan and the rest of the United States Great Lakes through FEMA's Risk Mapping, Assessment, and Planning (MAP) Program. Data from this study will eventually be used to convey coastal flood hazard risk through revised Flood Insurance Rate Maps (FIRMs), also known as regulatory products, and new risk planning and assessment products and datasets, also referred to as non-regulatory products and datasets. Please see enclosed Risk MAP Flood Risk Products Fact Sheet. More information about the Great Lakes Coastal Flood Study may be found at http://www.greatlakescoast.org.

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Your Discovery Meeting is scheduled to occur:

Date/Time:	**Thursday**, August 23, 2012; 9:00am - 11:00 am CT
Location:	Northwestern University, Norris University Center – Louis South Room
Address:	1999 Campus Drive Evanston, Illinois 60208

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Please save this date on your calendar. At the meeting, we will review the coastal flood risk data we have gathered to date and discuss your community's coastal floodplains, mitigation plan and projects, coastal flood risk concerns, and coastal floodplain management activities. This discussion will allow us to better identify your community's coastal flood hazard needs and subsequent Risk MAP regulatory and non-regulatory products and datasets that can be delivered during the Risk MAP project. We will also discuss how the coastal flood risks and needs are related to mapping, risk assessment, Hazard Mitigation planning, and grant programs available to eligible communities. To best facilitate this discussion, we would like to request your help in inviting community leaders, emergency managers, GIS specialists, engineers, outreach

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Participant Code:	197462

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By mail:	Scott Banjavcic CDM Smith/STARR 125 S. Wacker Drive, Suite 600 Chicago, Illinois 60606

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Sincerely,

Christine Stack

Christine Stack
Division Director
Mitigation Division, FEMA Region V

Enclosures: Risk MAP Flood Risk Products Fact Sheet
Community Discovery Coastal Data Request Form

cc: Christine Van Dornick, Village Engineer, Village of Glencoe
Paul Osman, Illinois Department of Natural Resources
Arlan Juhl, Illinois Department of Natural Resources
Ron Davis, Illinois Emergency Management Agency

U.S. Department of Homeland Security
536 S. Clark St. 6th Floor
Chicago, IL 60605

FEMA

August 3, 2012

Mr. Fred Steingraber
Village President, Village of Kenilworth
Village Hall
419 Richmond Road
Kenilworth, Illinois 60043

CORRECTION TO INVITATION SENT ON JULY 19, 2012
Re: Invitation to Attend Community Meetings Regarding Lake Michigan Coastal Flood Risk

Dear Mr. Steingraber:

The Federal Emergency Management Agency (FEMA) is conducting a comprehensive study of flood hazards for Lake Michigan and the rest of the United States Great Lakes through FEMA's Risk Mapping, Assessment, and Planning (MAP) Program. Data from this study will eventually be used to convey coastal flood hazard risk through revised Flood Insurance Rate Maps (FIRMs), also known as regulatory products, and new risk planning and assessment products and datasets, also referred to as non-regulatory products and datasets. Please see enclosed Risk MAP Flood Risk Products Fact Sheet. More information about the Great Lakes Coastal Flood Study may be found at http://www.greatlakescoast.org.

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Date/Time:	**Thursday**, August 23, 2012; 9:00am - 11:00 am CT
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Address:	1999 Campus Drive Evanston, Illinois 60208

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Sincerely,

Christine Stack

Christine Stack
Division Director
Mitigation Division, FEMA Region V

Enclosures: Risk MAP Flood Risk Products Fact Sheet
Community Discovery Coastal Data Request Form

cc: Susan Criezis, Community Development Director, Village of Kenilworth
Paul Osman, Illinois Department of Natural Resources
Arlan Juhl, Illinois Department of Natural Resources
Ron Davis, Illinois Emergency Management Agency

U.S. Department of Homeland Security
536 S. Clark St. 6th Floor
Chicago, IL 60605

FEMA

August 3, 2012

Mr. Fred Gougler
Village President, Village of Northfield
Village Hall
361 Happ Road
Northfield, Illinois 60093

CORRECTION TO INVITATION SENT ON JULY 19, 2012
Re: Invitation to Attend Community Meetings Regarding Lake Michigan Coastal Flood Risk

Dear Mr. Gougler:

The Federal Emergency Management Agency (FEMA) is conducting a comprehensive study of flood hazards for Lake Michigan and the rest of the United States Great Lakes through FEMA's Risk Mapping, Assessment, and Planning (MAP) Program. Data from this study will eventually be used to convey coastal flood hazard risk through revised Flood Insurance Rate Maps (FIRMs), also known as regulatory products, and new risk planning and assessment products and datasets, also referred to as non-regulatory products and datasets. Please see enclosed Risk MAP Flood Risk Products Fact Sheet. More information about the Great Lakes Coastal Flood Study may be found at http://www.greatlakescoast.org.

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Sincerely,

Christine Stack

Christine Stack
Division Director
Mitigation Division, FEMA Region V

Enclosures: Risk MAP Flood Risk Products Fact Sheet
Community Discovery Coastal Data Request Form

cc: Greg Kramer, Village Engineer, Village of Northfield
Paul Osman, Illinois Department of Natural Resources
Arlan Juhl, Illinois Department of Natural Resources
Ron Davis, Illinois Emergency Management Agency

U.S. Department of Homeland Security
536 S. Clark St. 6th Floor
Chicago, IL 60605

FEMA

August 3, 2012

Mr. Christopher Canning
Village President, Village of Wilmette
Village Hall
1200 Wilmette Avenue
Willmette, Illinois 60091

CORRECTION TO INVITATION SENT ON JULY 19, 2012
Re: Invitation to Attend Community Meetings Regarding Lake Michigan Coastal Flood Risk

Dear Mr. Canning:

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Via e-mail:	GreatLakesFloodStudy@starr-team.com
By mail:	Scott Banjavcic CDM Smith/STARR 125 S. Wacker Drive, Suite 600 Chicago, Illinois 60606

We look forward to working with you to reduce the risks associated with coastal flooding and increase your community's resiliency for the long term. To learn more about Discovery, please visit http://www.fema.gov/library and search keywords "Discovery brochure" or contact Ken Hinterlong, FEMA Region V Senior Engineer, at (312) 408-5529, or by email at ken.hinterlong@fema.dhs.gov . We look forward to discussing this with you during the Information Exchange call and/or seeing you at the upcoming Discovery Meeting.

Sincerely,

Christine Stack

Christine Stack
Division Director
Mitigation Division, FEMA Region V

Enclosures: Risk MAP Flood Risk Products Fact Sheet
Community Discovery Coastal Data Request Form

cc: Brigitte Mayerhofer, Director of Engineering, Village of Wilmette
Paul Osman, Illinois Department of Natural Resources
Arlan Juhl, Illinois Department of Natural Resources
Ron Davis, Illinois Emergency Management Agency

U.S. Department of Homeland Security
536 S. Clark St. 6th Floor
Chicago, IL 60605

FEMA

August 3, 2012

Ms. Jessica Tucker
Village President, Village of Winnetka
Village Hall
510 Green Bay Road
Winnetka, Illinois 60093

CORRECTION TO INVITATION SENT ON JULY 19, 2012
Re: Invitation to Attend Community Meetings Regarding Lake Michigan Coastal Flood Risk

Dear Ms. Tucker:

The Federal Emergency Management Agency (FEMA) is conducting a comprehensive study of flood hazards for Lake Michigan and the rest of the United States Great Lakes through FEMA's Risk Mapping, Assessment, and Planning (MAP) Program. Data from this study will eventually be used to convey coastal flood hazard risk through revised Flood Insurance Rate Maps (FIRMs), also known as regulatory products, and new risk planning and assessment products and datasets, also referred to as non-regulatory products and datasets. Please see enclosed Risk MAP Flood Risk Products Fact Sheet. More information about the Great Lakes Coastal Flood Study may be found at http://www.greatlakescoast.org.

The goal of Risk MAP is to support actions that make communities safer from flooding. The Risk MAP program wants to achieve continued improvement of flood hazard information for the National Flood Insurance Program (NFIP); to promote increased awareness and understanding of flood risk; to increase community engagement; and to identify and support actions that local stakeholders can take to reduce natural hazard risks. For additional information on the Risk MAP Program, please visit http://www.fema.gov/plan/prevent/fhm/rm_main.shtm.

The first phase of the Risk MAP process is Discovery. Through Discovery, input provided by communities will help FEMA to better understand local coastal flood risk data and needs, and characterize local conditions that contribute to coastal flood risk.

Your Discovery Meeting is scheduled to occur:

Date/Time:	**Thursday**, August 23, 2012; 9:00am - 11:00 am CT
Location:	Northwestern University, Norris University Center – Louis South Room
Address:	1999 Campus Drive Evanston, Illinois 60208

*Parking is available in the level 2 garage, located at Entrance "A" 1842 Campus Drive just off of Sheridan Road. Parking restrictions will be waived for this event.

Please save this date on your calendar. At the meeting, we will review the coastal flood risk data we have gathered to date and discuss your community's coastal floodplains, mitigation plan and projects, coastal flood risk concerns, and coastal floodplain management activities. This discussion will allow us to better identify your community's coastal flood hazard needs and subsequent Risk MAP regulatory and non-regulatory products and datasets that can be delivered during the Risk MAP project. We will also discuss how the coastal flood risks and needs are related to mapping, risk assessment, Hazard Mitigation planning, and grant programs available to eligible communities. To best facilitate this discussion, we would like to request your help in inviting community leaders, emergency managers, GIS specialists, engineers, outreach

specialists, and local planners to the meeting. Please RSVP to FEMA's study contractor (STARR) Scott Banjavcic at (312) 780-7755 or email to GreatLakesFloodStudy@starr-team.com no later than **August 10, 2012.** Please reference the Discovery Meeting date and time in your RSVP.

So that we can better prepare for the upcoming Discovery Meeting, we are asking local communities to participate in an Information Exchange conference call and WebEx. This call will provide an overview of FEMA's Risk MAP program and the Discovery process, and will allow us to review with you our request for the exchange of coastal flood risk and hazard mitigation data, and to learn more about your community's coastal flood hazard risks and needs, in advance of the Discovery Meeting. The partnership and exchange of data between FEMA, the State, and your community is vital to the success of identifying flood risks and needs that may impact your citizens.

The Information Exchange conference call is scheduled to occur:

Date/Time:	Monday, August 6, 2012; 2:00 - 3:00 pm CT
Link to WebEx:	http://e-meetings.verizonbusiness.com/nc/join.php
Meeting Number:	445288484
Call in number:	1-866-398-2885
Participant Code:	197462

If you or another community representative is unable to attend the Information Exchange conference call, we ask that you fill out and return the enclosed data request form by **August 10, 2012.** This is the same data request form that will be discussed during the conference call. The completed form can be sent to:

Via e-mail:	GreatLakesFloodStudy@starr-team.com
By mail:	Scott Banjavcic CDM Smith/STARR 125 S. Wacker Drive, Suite 600 Chicago, Illinois 60606

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Sincerely,

Christine Stack

Christine Stack
Division Director
Mitigation Division, FEMA Region V

Enclosures: Risk MAP Flood Risk Products Fact Sheet
Community Discovery Coastal Data Request Form

cc: Steve Sanuders, Director of Public Works and Village Engineer, Village of Winnetka
Paul Osman, Illinois Department of Natural Resources
Arlan Juhl, Illinois Department of Natural Resources
Ron Davis, Illinois Emergency Management Agency

U.S. Department of Homeland Security
536 S. Clark St. 6th Floor
Chicago, IL 60605

FEMA

August 3, 2012

The Honorable Nancy Rotering
Mayor, City of Highland Park
City Hall
1707 St. Johns Avenue
Highland Park, Illinois 60035

CORRECTION TO INVITATION SENT ON JULY 19, 2012
Re: Invitation to Attend Community Meetings Regarding Lake Michigan Coastal Flood Risk

Dear Mayor Rotering:

The Federal Emergency Management Agency (FEMA) is conducting a comprehensive study of flood hazards for Lake Michigan and the rest of the United States Great Lakes through FEMA's Risk Mapping, Assessment, and Planning (MAP) Program. Data from this study will eventually be used to convey coastal flood hazard risk through revised Flood Insurance Rate Maps (FIRMs), also known as regulatory products, and new risk planning and assessment products and datasets, also referred to as non-regulatory products and datasets. Please see enclosed Risk MAP Flood Risk Products Fact Sheet. More information about the Great Lakes Coastal Flood Study may be found at http://www.greatlakescoast.org.

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Your Discovery Meeting is scheduled to occur:

Date/Time:	**Thursday**, August 23, 2012; 9:00am - 11:00 am CT
Location:	Northwestern University, Norris University Center – Louis South Room
Address:	1999 Campus Drive Evanston, Illinois 60208

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Call in number:	1-866-398-2885
Participant Code:	197462

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By mail:	Scott Banjavcic CDM Smith/STARR 125 S. Wacker Drive, Suite 600 Chicago, Illinois 60606

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Sincerely,

Christine Stack

Christine Stack
Division Director
Mitigation Division, FEMA Region V

Enclosures: Risk MAP Flood Risk Products Fact Sheet
Community Discovery Coastal Data Request Form

cc: John Welch, City Engineer, City of Highland Park
Paul Osman, Illinois Department of Natural Resources
Arlan Juhl, Illinois Department of Natural Resources
Ron Davis, Illinois Emergency Management Agency

U.S. Department of Homeland Security
536 S. Clark St. 6th Floor
Chicago, IL 60605

FEMA

August 3, 2012

The Honorable Charles Pecaro
Mayor, City of Highwood
City Hall
17 Highwood Avenue
Highwood, Illinois 60040

CORRECTION TO INVITATION SENT ON JULY 19, 2012
Re: Invitation to Attend Community Meetings Regarding Lake Michigan Coastal Flood Risk

Dear Mayor Pecaro:

The Federal Emergency Management Agency (FEMA) is conducting a comprehensive study of flood hazards for Lake Michigan and the rest of the United States Great Lakes through FEMA's Risk Mapping, Assessment, and Planning (MAP) Program. Data from this study will eventually be used to convey coastal flood hazard risk through revised Flood Insurance Rate Maps (FIRMs), also known as regulatory products, and new risk planning and assessment products and datasets, also referred to as non-regulatory products and datasets. Please see enclosed Risk MAP Flood Risk Products Fact Sheet. More information about the Great Lakes Coastal Flood Study may be found at http://www.greatlakescoast.org.

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Your Discovery Meeting is scheduled to occur:

Date/Time:	**Thursday**, August 23, 2012; 9:00am - 11:00 am CT
Location:	Northwestern University, Norris University Center – Louis South Room
Address:	1999 Campus Drive Evanston, Illinois 60208

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Please save this date on your calendar. At the meeting, we will review the coastal flood risk data we have gathered to date and discuss your community's coastal floodplains, mitigation plan and projects, coastal flood risk concerns, and coastal floodplain management activities. This discussion will allow us to better identify your community's coastal flood hazard needs and subsequent Risk MAP regulatory and non-regulatory products and datasets that can be delivered during the Risk MAP project. We will also discuss how the coastal flood risks and needs are related to mapping, risk assessment, Hazard Mitigation planning, and grant programs available to eligible communities. To best facilitate this discussion, we would like to request your help in inviting community leaders, emergency managers, GIS specialists, engineers, outreach

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Link to WebEx:	http://e-meetings.verizonbusiness.com/nc/join.php
Meeting Number:	445288484
Call in number:	1-866-398-2885
Participant Code:	197462

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Via e-mail:	GreatLakesFloodStudy@starr-team.com
By mail:	Scott Banjavcic CDM Smith/STARR 125 S. Wacker Drive, Suite 600 Chicago, Illinois 60606

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Sincerely,

Christine Stack

Christine Stack
Division Director
Mitigation Division, FEMA Region V

Enclosures: Risk MAP Flood Risk Products Fact Sheet
Community Discovery Coastal Data Request Form

cc: Scott Hartman, City Manager and Zoning Administrator, City of Highwood
Paul Osman, Illinois Department of Natural Resources
Arlan Juhl, Illinois Department of Natural Resources
Ron Davis, Illinois Emergency Management Agency

U.S. Department of Homeland Security
536 S. Clark St. 6th Floor
Chicago, IL 60605

FEMA

August 3, 2012

The Honorable James Cowhey, Jr.
Mayor, City of Lake Forest
City Hall
220 East Deerpath
Lake Forest, Illinois 60045

CORRECTION TO INVITATION SENT ON JULY 19, 2012
Re: Invitation to Attend Community Meetings Regarding Lake Michigan Coastal Flood Risk

Dear Mayor Cowhey, Jr.:

The Federal Emergency Management Agency (FEMA) is conducting a comprehensive study of flood hazards for Lake Michigan and the rest of the United States Great Lakes through FEMA's Risk Mapping, Assessment, and Planning (MAP) Program. Data from this study will eventually be used to convey coastal flood hazard risk through revised Flood Insurance Rate Maps (FIRMs), also known as regulatory products, and new risk planning and assessment products and datasets, also referred to as non-regulatory products and datasets. Please see enclosed Risk MAP Flood Risk Products Fact Sheet. More information about the Great Lakes Coastal Flood Study may be found at http://www.greatlakescoast.org.

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Your Discovery Meeting is scheduled to occur:

Date/Time:	**Thursday**, August 23, 2012; 9:00am - 11:00 am CT
Location:	Northwestern University, Norris University Center – Louis South Room
Address:	1999 Campus Drive Evanston, Illinois 60208

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Please save this date on your calendar. At the meeting, we will review the coastal flood risk data we have gathered to date and discuss your community's coastal floodplains, mitigation plan and projects, coastal flood risk concerns, and coastal floodplain management activities. This discussion will allow us to better identify your community's coastal flood hazard needs and subsequent Risk MAP regulatory and non-regulatory products and datasets that can be delivered during the Risk MAP project. We will also discuss how the coastal flood risks and needs are related to mapping, risk assessment, Hazard Mitigation planning, and grant programs available to eligible communities. To best facilitate this discussion, we would like to request your help in inviting community leaders, emergency managers, GIS specialists, engineers, outreach

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Meeting Number:	445288484
Call in number:	1-866-398-2885
Participant Code:	197462

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By mail:	Scott Banjavcic CDM Smith/STARR 125 S. Wacker Drive, Suite 600 Chicago, Illinois 60606

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Sincerely,

Christine Stack

Christine Stack
Division Director
Mitigation Division, FEMA Region V

Enclosures: Risk MAP Flood Risk Products Fact Sheet
Community Discovery Coastal Data Request Form

cc: Ramesh Kanapareddy, City Engineer, City of Lake Forest
Paul Osman, Illinois Department of Natural Resources
Arlan Juhl, Illinois Department of Natural Resources
Ron Davis, Illinois Emergency Management Agency

U.S. Department of Homeland Security
536 S. Clark St. 6th Floor
Chicago, IL 60605

FEMA

August 3, 2012

The Honorable Leon Rockingham, Jr.
Mayor, City of North Chicago
City Hall
1850 Lewis Avenue
North Chicago, Illinois 60064

CORRECTION TO INVITATION SENT ON JULY 19, 2012
Re: Invitation to Attend Community Meetings Regarding Lake Michigan Coastal Flood Risk

Dear Mayor Rockingham, Jr.:

The Federal Emergency Management Agency (FEMA) is conducting a comprehensive study of flood hazards for Lake Michigan and the rest of the United States Great Lakes through FEMA's Risk Mapping, Assessment, and Planning (MAP) Program. Data from this study will eventually be used to convey coastal flood hazard risk through revised Flood Insurance Rate Maps (FIRMs), also known as regulatory products, and new risk planning and assessment products and datasets, also referred to as non-regulatory products and datasets. Please see enclosed Risk MAP Flood Risk Products Fact Sheet. More information about the Great Lakes Coastal Flood Study may be found at http://www.greatlakescoast.org.

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Address:	1999 Campus Drive Evanston, Illinois 60208

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Sincerely,

Christine Stack

Christine Stack
Division Director
Mitigation Division, FEMA Region V

Enclosures: Risk MAP Flood Risk Products Fact Sheet
Community Discovery Coastal Data Request Form

cc: Josh Wheeler, City Engineer and Public Works Director, City of North Chicago
Paul Osman, Illinois Department of Natural Resources
Arlan Juhl, Illinois Department of Natural Resources
Ron Davis, Illinois Emergency Management Agency

U.S. Department of Homeland Security
536 S. Clark St. 6th Floor
Chicago, IL 60605

FEMA

August 3, 2012

The Honorable Robert Sabonjian
Mayor, City of Waukegan
City Hall
100 North Martin Luther King Jr. Avenue
Waukegan, Illinois 60085

CORRECTION TO INVITATION SENT ON JULY 19, 2012
Re: Invitation to Attend Community Meetings Regarding Lake Michigan Coastal Flood Risk

Dear Mayor Sabonjian:

The Federal Emergency Management Agency (FEMA) is conducting a comprehensive study of flood hazards for Lake Michigan and the rest of the United States Great Lakes through FEMA's Risk Mapping, Assessment, and Planning (MAP) Program. Data from this study will eventually be used to convey coastal flood hazard risk through revised Flood Insurance Rate Maps (FIRMs), also known as regulatory products, and new risk planning and assessment products and datasets, also referred to as non-regulatory products and datasets. Please see enclosed Risk MAP Flood Risk Products Fact Sheet. More information about the Great Lakes Coastal Flood Study may be found at http://www.greatlakescoast.org.

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Sincerely,

Christine Stack

Christine Stack
Division Director
Mitigation Division, FEMA Region V

Enclosures: Risk MAP Flood Risk Products Fact Sheet
Community Discovery Coastal Data Request Form

cc: Ron Laubach, City Engineer, City of Waukegan
Paul Osman, Illinois Department of Natural Resources
Arlan Juhl, Illinois Department of Natural Resources
Ron Davis, Illinois Emergency Management Agency

U.S. Department of Homeland Security
536 S. Clark St. 6th Floor
Chicago, IL 60605

FEMA

August 3, 2012

The Honorable Lane Harrison
Mayor, City of Zion
City Hall
2828 Sheridan Road
Zion, Illinois 60099

CORRECTION TO INVITATION SENT ON JULY 19, 2012
Re: Invitation to Attend Community Meetings Regarding Lake Michigan Coastal Flood Risk

Dear Mayor Harrison:

The Federal Emergency Management Agency (FEMA) is conducting a comprehensive study of flood hazards for Lake Michigan and the rest of the United States Great Lakes through FEMA's Risk Mapping, Assessment, and Planning (MAP) Program. Data from this study will eventually be used to convey coastal flood hazard risk through revised Flood Insurance Rate Maps (FIRMs), also known as regulatory products, and new risk planning and assessment products and datasets, also referred to as non-regulatory products and datasets. Please see enclosed Risk MAP Flood Risk Products Fact Sheet. More information about the Great Lakes Coastal Flood Study may be found at http://www.greatlakescoast.org.

The goal of Risk MAP is to support actions that make communities safer from flooding. The Risk MAP program wants to achieve continued improvement of flood hazard information for the National Flood Insurance Program (NFIP); to promote increased awareness and understanding of flood risk; to increase community engagement; and to identify and support actions that local stakeholders can take to reduce natural hazard risks. For additional information on the Risk MAP Program, please visit http://www.fema.gov/plan/prevent/fhm/rm_main.shtm.

The first phase of the Risk MAP process is Discovery. Through Discovery, input provided by communities will help FEMA to better understand local coastal flood risk data and needs, and characterize local conditions that contribute to coastal flood risk.

Your Discovery Meeting is scheduled to occur:

Date/Time:	**Thursday**, August 23, 2012; 9:00am - 11:00 am CT
Location:	Northwestern University, Norris University Center – Louis South Room
Address:	1999 Campus Drive Evanston, Illinois 60208

*Parking is available in the level 2 garage, located at Entrance "A" 1842 Campus Drive just off of Sheridan Road. Parking restrictions will be waived for this event.

Please save this date on your calendar. At the meeting, we will review the coastal flood risk data we have gathered to date and discuss your community's coastal floodplains, mitigation plan and projects, coastal flood risk concerns, and coastal floodplain management activities. This discussion will allow us to better identify your community's coastal flood hazard needs and subsequent Risk MAP regulatory and non-regulatory products and datasets that can be delivered during the Risk MAP project. We will also discuss how the coastal flood risks and needs are related to mapping, risk assessment, Hazard Mitigation planning, and grant programs available to eligible communities. To best facilitate this discussion, we would like to request your help in inviting community leaders, emergency managers, GIS specialists, engineers, outreach specialists, and local planners to the meeting. Please RSVP to FEMA's study contractor (STARR) Scott

Banjavcic at (312) 780-7755 or email to GreatLakesFloodStudy@starr-team.com no later than **August 10, 2012.** Please reference the Discovery Meeting date and time in your RSVP.

So that we can better prepare for the upcoming Discovery Meeting, we are asking local communities to participate in an Information Exchange conference call and WebEx. This call will provide an overview of FEMA's Risk MAP program and the Discovery process, and will allow us to review with you our request for the exchange of coastal flood risk and hazard mitigation data, and to learn more about your community's coastal flood hazard risks and needs, in advance of the Discovery Meeting. The partnership and exchange of data between FEMA, the State, and your community is vital to the success of identifying flood risks and needs that may impact your citizens.

The Information Exchange conference call is scheduled to occur:

Date/Time:	Monday, August 6, 2012; 2:00 - 3:00 pm CT
Link to WebEx:	http://e-meetings.verizonbusiness.com/nc/join.php
Meeting Number:	445288484
Call in number:	1-866-398-2885
Participant Code:	197462

If you or another community representative is unable to attend the Information Exchange conference call, we ask that you fill out and return the enclosed data request form by **August 10, 2012.** This is the same data request form that will be discussed during the conference call. The completed form can be sent to:

Via e-mail:	GreatLakesFloodStudy@starr-team.com
By mail:	Scott Banjavcic CDM Smith/STARR 125 S. Wacker Drive, Suite 600 Chicago, Illinois 60606

We look forward to working with you to reduce the risks associated with coastal flooding and increase your community's resiliency for the long term. To learn more about Discovery, please visit http://www.fema.gov/library and search keywords "Discovery brochure" or contact Ken Hinterlong, FEMA Region V Senior Engineer, at (312) 408-5529, or by email at ken.hinterlong@fema.dhs.gov . We look forward to discussing this with you during the Information Exchange call and/or seeing you at the upcoming Discovery Meeting.

Sincerely,

Christine Stack

Christine Stack
Division Director
Mitigation Division, FEMA Region V

Enclosures: Risk MAP Flood Risk Products Fact Sheet
Community Discovery Coastal Data Request Form

cc: Ron Colangelo, Director, Public Works Department, City of Zion
Paul Osman, Illinois Department of Natural Resources
Arlan Juhl, Illinois Department of Natural Resources
Ron Davis, Illinois Emergency Management Agency

U.S. Department of Homeland Security
536 S. Clark St. 6th Floor
Chicago, IL 60605

FEMA

August 3, 2012

Mr. David Stolman
Chairperson, County Board, Lake County
18 North County Street
10th Floor
Waukegan, Illinois 60085

CORRECTION TO INVITATION SENT ON JULY 19, 2012
Re: Invitation to Attend Community Meetings Regarding Lake Michigan Coastal Flood Risk

Dear Mr. Stolman:

The Federal Emergency Management Agency (FEMA) is conducting a comprehensive study of flood hazards for Lake Michigan and the rest of the United States Great Lakes through FEMA's Risk Mapping, Assessment, and Planning (MAP) Program. Data from this study will eventually be used to convey coastal flood hazard risk through revised Flood Insurance Rate Maps (FIRMs), also known as regulatory products, and new risk planning and assessment products and datasets, also referred to as non-regulatory products and datasets. Please see enclosed Risk MAP Flood Risk Products Fact Sheet. More information about the Great Lakes Coastal Flood Study may be found at http://www.greatlakescoast.org.

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specialists, and local planners to the meeting. Please RSVP to FEMA's study contractor (STARR) Scott Banjavcic at (312) 780-7755 or email to GreatLakesFloodStudy@starr-team.com no later than **August 10, 2012.** Please reference the Discovery Meeting date and time in your RSVP.

So that we can better prepare for the upcoming Discovery Meeting, we are asking local communities to participate in an Information Exchange conference call and WebEx. This call will provide an overview of FEMA's Risk MAP program and the Discovery process, and will allow us to review with you our request for the exchange of coastal flood risk and hazard mitigation data, and to learn more about your community's coastal flood hazard risks and needs, in advance of the Discovery Meeting. The partnership and exchange of data between FEMA, the State, and your community is vital to the success of identifying flood risks and needs that may impact your citizens.

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Via e-mail:	GreatLakesFloodStudy@starr-team.com
By mail:	Scott Banjavcic CDM Smith/STARR 125 S. Wacker Drive, Suite 600 Chicago, Illinois 60606

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Sincerely,

Christine Stack

Christine Stack
Division Director
Mitigation Division, FEMA Region V

Enclosures: Risk MAP Flood Risk Products Fact Sheet
Community Discovery Coastal Data Request Form

cc: Michael Warner, Executive Director of Stormwater Management Commission, Lake County
Paul Osman, Illinois Department of Natural Resources
Arlan Juhl, Illinois Department of Natural Resources
Ron Davis, Illinois Emergency Management Agency

U.S. Department of Homeland Security
536 S. Clark St. 6th Floor
Chicago, IL 60605

FEMA

August 3, 2012

The Honorable John Hucker
Mayor Pro Tem, Village of Beach Park
Village Hall
11270 Wadsworth Road
Beach Park, Illinois 60099

CORRECTION TO INVITATION SENT ON JULY 19, 2012
Re: Invitation to Attend Community Meetings Regarding Lake Michigan Coastal Flood Risk

Dear Mayor Hucker:

The Federal Emergency Management Agency (FEMA) is conducting a comprehensive study of flood hazards for Lake Michigan and the rest of the United States Great Lakes through FEMA's Risk Mapping, Assessment, and Planning (MAP) Program. Data from this study will eventually be used to convey coastal flood hazard risk through revised Flood Insurance Rate Maps (FIRMs), also known as regulatory products, and new risk planning and assessment products and datasets, also referred to as non-regulatory products and datasets. Please see enclosed Risk MAP Flood Risk Products Fact Sheet. More information about the Great Lakes Coastal Flood Study may be found at http://www.greatlakescoast.org.

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Sincerely,

Christine Stack

Christine Stack
Division Director
Mitigation Division, FEMA Region V

Enclosures: Risk MAP Flood Risk Products Fact Sheet
Community Discovery Coastal Data Request Form

cc: Donna Perez, Permit Coordinator, Village of Beach Park
Paul Osman, Illinois Department of Natural Resources
Arlan Juhl, Illinois Department of Natural Resources
Ron Davis, Illinois Emergency Management Agency

U.S. Department of Homeland Security
536 S. Clark St. 6th Floor
Chicago, IL 60605

FEMA

August 3, 2012

Ms. Christine Letchinger
President, Board of Trustees, Village of Lake Bluff
Village Hall
40 East Center Avenue
Lake Bluff, Illinois 60044

CORRECTION TO INVITATION SENT ON JULY 19, 2012
Re: Invitation to Attend Community Meetings Regarding Lake Michigan Coastal Flood Risk

Dear Ms. Letchinger:

The Federal Emergency Management Agency (FEMA) is conducting a comprehensive study of flood hazards for Lake Michigan and the rest of the United States Great Lakes through FEMA's Risk Mapping, Assessment, and Planning (MAP) Program. Data from this study will eventually be used to convey coastal flood hazard risk through revised Flood Insurance Rate Maps (FIRMs), also known as regulatory products, and new risk planning and assessment products and datasets, also referred to as non-regulatory products and datasets. Please see enclosed Risk MAP Flood Risk Products Fact Sheet. More information about the Great Lakes Coastal Flood Study may be found at http://www.greatlakescoast.org.

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Banjavcic at (312) 780-7755 or email to GreatLakesFloodStudy@starr-team.com no later than **August 10, 2012.** Please reference the Discovery Meeting date and time in your RSVP.

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Sincerely,

Christine Stack

Christine Stack
Division Director
Mitigation Division, FEMA Region V

Enclosures: Risk MAP Flood Risk Products Fact Sheet
Community Discovery Coastal Data Request Form

cc: Gerald Nellessen, Building Code Supervisor, Village of Lake Bluff
George Russell, Village Engineer, Village of Lake Bluff
Paul Osman, Illinois Department of Natural Resources
Arlan Juhl, Illinois Department of Natural Resources
Ron Davis, Illinois Emergency Management Agency

U.S. Department of Homeland Security
536 S. Clark St. 6th Floor
Chicago, IL 60605

FEMA

August 3, 2012

The Honorable Robert Loy
Mayor, Village of Winthrop Harbor
Village Hall
830 Sheridan Road
Winthrop Harbor, Illinois 60096

CORRECTION TO INVITATION SENT ON JULY 19, 2012
Re: Invitation to Attend Community Meetings Regarding Lake Michigan Coastal Flood Risk

Dear Mayor Loy:

The Federal Emergency Management Agency (FEMA) is conducting a comprehensive study of flood hazards for Lake Michigan and the rest of the United States Great Lakes through FEMA's Risk Mapping, Assessment, and Planning (MAP) Program. Data from this study will eventually be used to convey coastal flood hazard risk through revised Flood Insurance Rate Maps (FIRMs), also known as regulatory products, and new risk planning and assessment products and datasets, also referred to as non-regulatory products and datasets. Please see enclosed Risk MAP Flood Risk Products Fact Sheet. More information about the Great Lakes Coastal Flood Study may be found at http://www.greatlakescoast.org.

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Sincerely,

Christine Stack

Christine Stack
Division Director
Mitigation Division, FEMA Region V

Enclosures: Risk MAP Flood Risk Products Fact Sheet
Community Discovery Coastal Data Request Form

cc: Joel Brumlik, Chief of Police, Village of Winthrop Harbor
Paul Osman, Illinois Department of Natural Resources
Arlan Juhl, Illinois Department of Natural Resources
Ron Davis, Illinois Emergency Management Agency

From: Great Lakes Coastal Flood Study [mailto:Great_Lakes_Coastal_Flood_Study@mail.vresp.com]
Sent: Friday, August 03, 2012 10:09 AM
To: Banjavcic, Scott
Subject: Test Message - HTML Format:{CORRECTION TO MEETING DATE} Invitation to Illinois Community Meeting Re: Lake Michigan Coastal Flood Risk

Dear State of Illinois Lake Michigan Coastal Flood Study Stakeholders:

The Federal Emergency Management Agency (FEMA) is conducting a comprehensive study of flood hazards for Lake Michigan and the rest of the United States Great Lakes through FEMA's Risk Mapping, Assessment, and Planning (MAP) Program. Data from this study will eventually be used to convey coastal flood hazard risk through revised Flood Insurance Rate Maps (FIRMs), also known as regulatory products, and new risk planning and assessment products and datasets, also referred to as non-regulatory products and datasets. More information about the Great Lakes Coastal Flood Study may be found at http://www.greatlakescoast.org.

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We would like to invite you to attend the following Discovery Meeting being held in Illinois for Lake Michigan.

Cook & Lake County (Discovery Meeting)
Thursday, August 23, 2012 **{Corrected Date}**
9:00am - 11:00 am CT
Northwestern University,
Norris University Center, Louis South Room
1999 Campus Drive
Evanston, IL 60208

**Parking is available in the level 2 garage, located at Entrance "A" 1842 Campus Drive just off of Sheridan Road. Parking restrictions will be waived for this event.*

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A Community Coastal Data Request Form was recently mailed to local community officials, along with the Discovery Meeting invitation. This form is also available online at http://www.greatlakescoast.org/pubs/forms/GLCFS_Discovery_Coastal_Data_Request_Form.pdf.

If you have data or information that you would like to provide to FEMA or discuss with us in advance of the Discovery Meetings, please contact Laura Keating of STARR at (925) 296-8048 or by email at GreatLakesFloodStudy@starr-team.com.

We look forward to working with you to reduce the risks associated with coastal flooding and increase resiliency for the long term. To learn more about Discovery, please visit http://www.fema.gov/library and search keywords "Discovery brochure" or contact Ken Hinterlong, FEMA Region V Senior Engineer, at (312) 408-5529, or by email at ken.hinterlong@fema.dhs.gov . We look forward to seeing you at the upcoming Discovery Meeting.

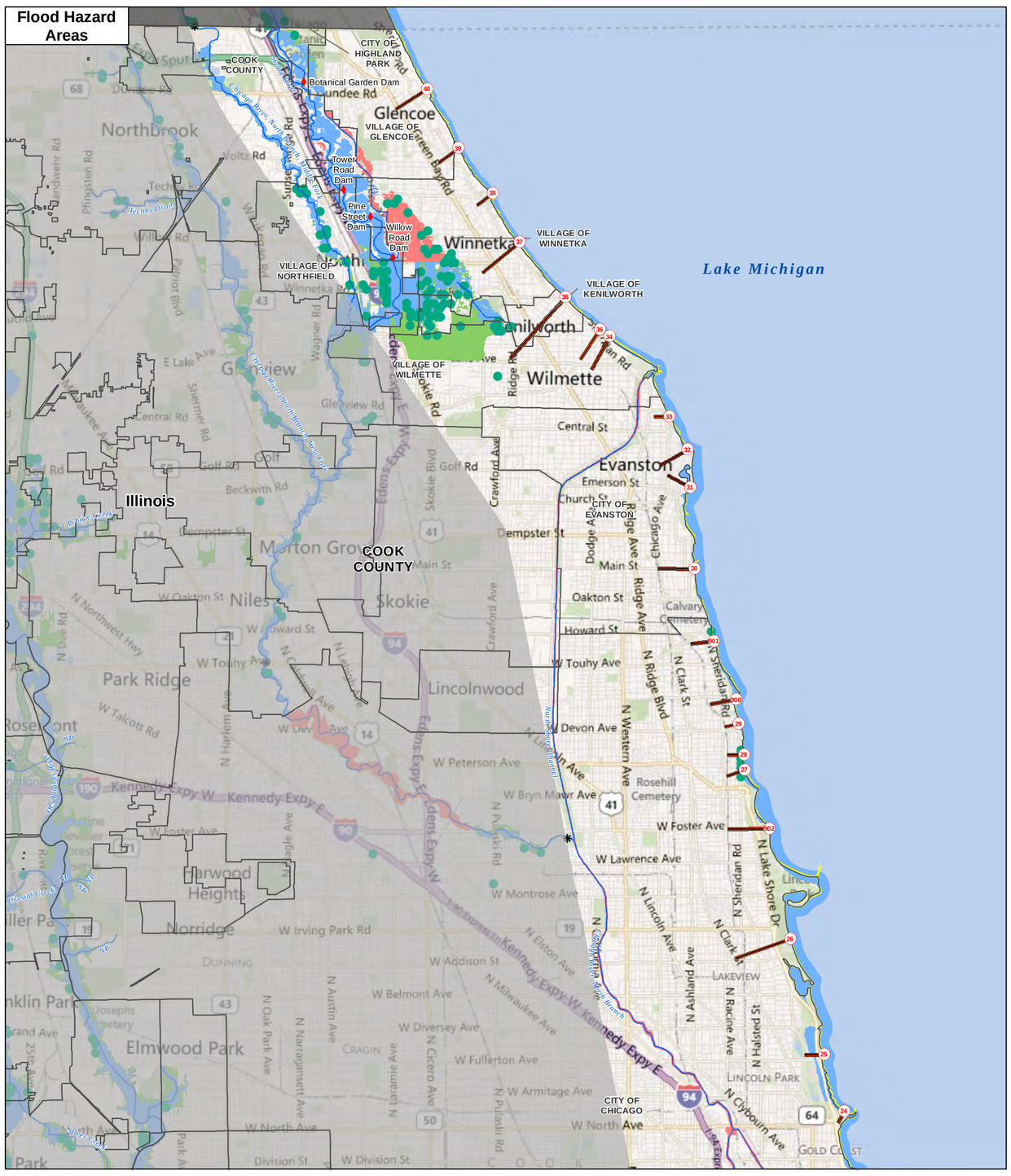
For additional information on the Great Lakes Coastal Flood Study, please visit: http://greatlakescoast.org.

Follow GreatLakesCoast on Twitter | Like GreatLakesCoast on Facebook

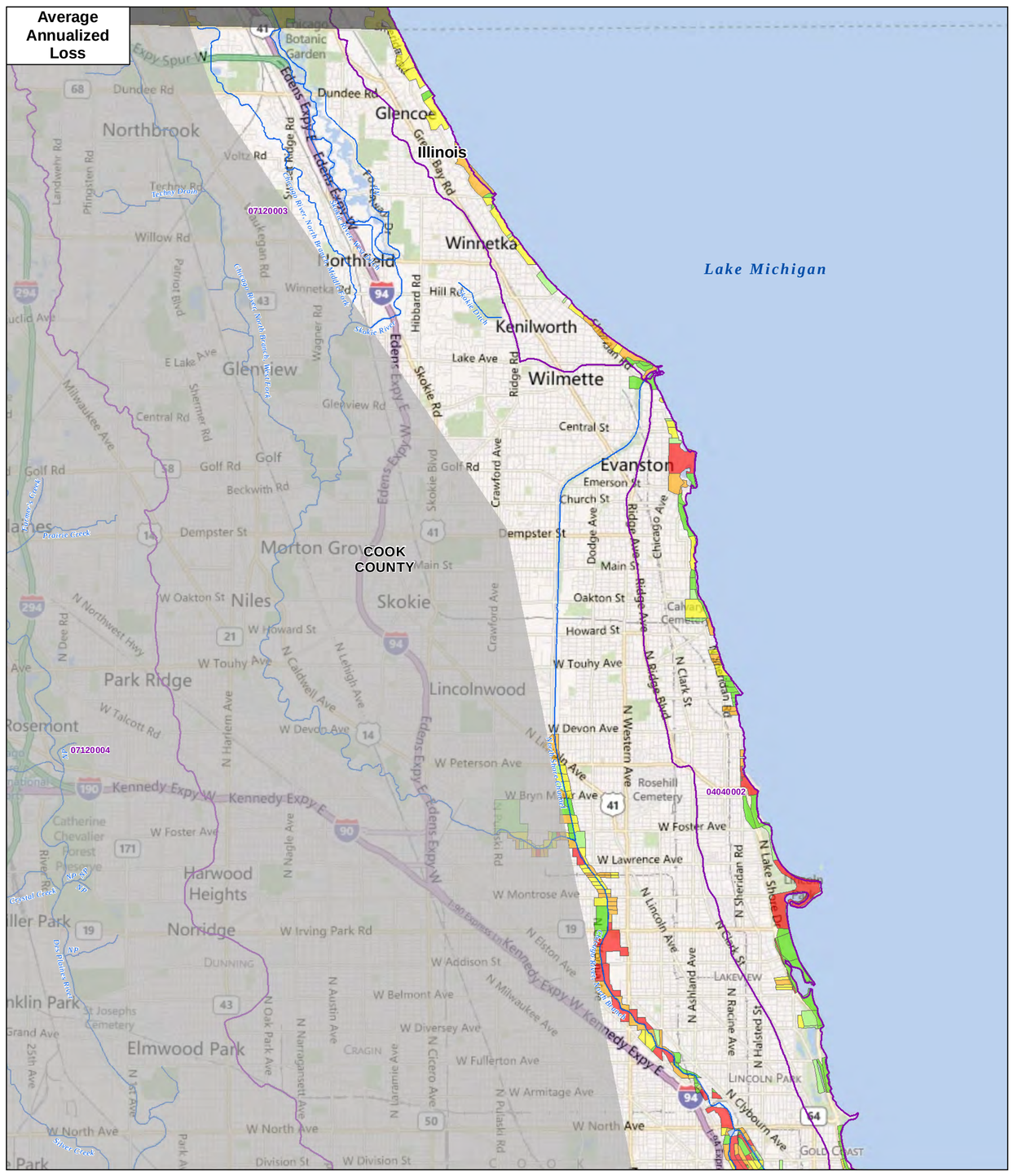
ATTACHMENT C

COOK AND LAKE COUNTY DRAFT DISCOVERY MAPS

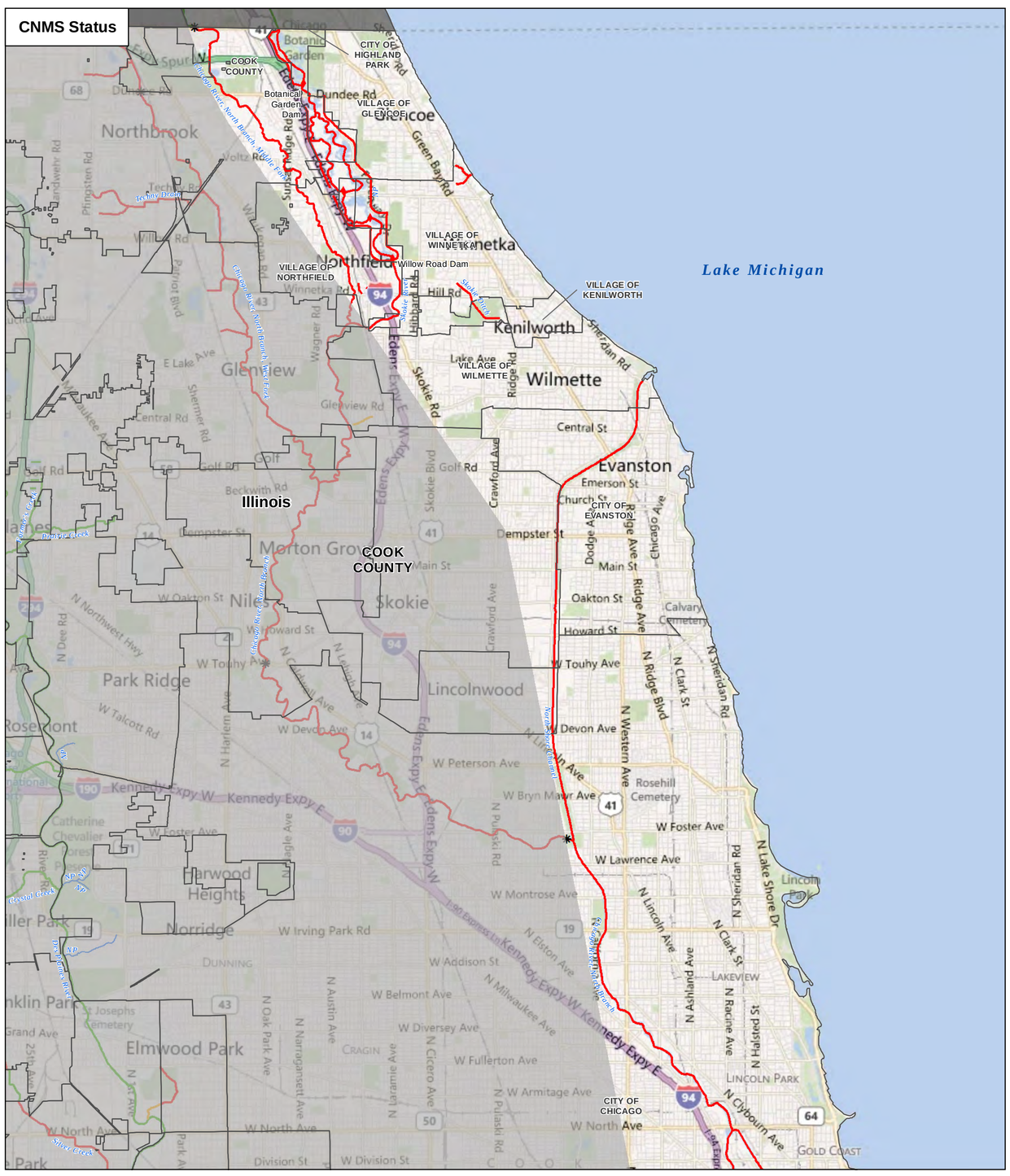
Flood Hazard Areas



Average Annualized Loss



CNMS Status



Declared Disasters

Lake	State	Declared County/Area	Declaration Date	Disaster Type	Incident Type	Description
Lake Michigan	IL	Cook (County)	4/25/1967	DR	Tornado	TORNADOES
Lake Michigan	IL	Cook (County)	9/4/1972	DR	Flood	SEVERE STORMS & FLOODING
Lake Michigan	IL	Cook (County)	4/26/1973	DR	Flood	SEVERE STORMS & FLOODING
Lake Michigan	IL	Cook (County)	6/18/1976	DR	Severe Storm(s)	SEVERE STORMS, TORNADOES & FLOODING
Lake Michigan	IL	Cook (County)	6/30/1981	DR	Severe Storm(s)	SEVERE STORMS, FLOODING & TORNADOES
Lake Michigan	IL	Cook (County)	10/7/1986	DR	Flood	SEVERE STORMS & FLOODING
Lake Michigan	IL	Cook (County)	8/21/1987	DR	Flood	SEVERE STORMS & FLOODING
Lake Michigan	IL	Cook (County)	7/9/1993	DR	Flood	SEVERE STORMS & FLOODING
Lake Michigan	IL	Cook (County)	7/25/1996	DR	Severe Storm(s)	SEVERE STORMS AND FLOODING
Lake Michigan	IL	Cook (County)	9/17/1997	DR	Severe Storm(s)	SEVERE STORMS AND FLOODING
Lake Michigan	IL	Cook (County)	9/25/2007	DR	Severe Storm(s)	SEVERE STORMS AND FLOODING
Lake Michigan	IL	Cook (County)	10/3/2008	DR	Severe Storm(s)	SEVERE STORMS AND FLOODING
Lake Michigan	IL	Cook (County)	8/19/2010	DR	Severe Storm(s)	SEVERE STORMS AND FLOODING
Lake Michigan	IL	Cook (County)	3/17/2011	DR	Snow	SEVERE WINTER STORM AND SNOWSTORM
Lake Michigan	IL	Cook (County)	1/16/1979	EM	Snow	BLIZZARDS & SNOWSTORMS
Lake Michigan	IL	Cook (County)	1/8/1999	EM	Snow	IL-WINTER STORM 1/1/99
Lake Michigan	IL	Cook (County)	1/17/2001	EM	Snow	ILLINOIS WINTER SNOW STORMS
Lake Michigan	IL	Cook (County)	9/7/2005	EM	Hurricane	HURRICANE KATRINA EVACUATION

Summary of Shoreline Type

Total Shoreline (mile)	Artificial Shoreline (mile)	Boulders, Bedrock (mile)	Cohesive Clays and Silts (mile)	Sand (mile)	Shingles, Pebbles, Cobbles (Mile)	Other (mile)
51.1	46.7	0.0	0.0	4.3	0.0	0.0

Summary of Shoreline Coverage

Total Shoreline (mile)	Bluff 2'-10' (mile)	Coastal Wetland	Dune 2'-10' (mile)	Flat Coast (mile)	High Bluff 10'+ (mile)	High Dune 10'+ (mile)	Other (mile)
51.1	31.1	0.0	14.4	5.6	0.0	0.0	0.0

N

0 2.5 5 10 Miles

MAP SYMBOLOGY

LEGEND

- Dams
- LOMCs
- USGS Gages
- Transects
- Shoreline
- Streams
- Watersheds (HUC 8)
- Coastal Barrier Resource System
- Coastal Discovery Area
- Surrounding Counties
- Municipal Boundaries

EFFECTIVE SFHA

- A
- AE
- 0.2% PCT ANNUAL CHANCE FLOOD

AAL DATA
Total Average Annualized Losses per Census Block

- Less than $10,000
- $10,001 - $100,000
- $100,001 - $1,000,000
- $1,000,001 - $5,000,000
- Greater than $5,000,000

Coordinated Needs Management Strategy (CNMS)
Validation Status

- Unverified
- Unknown
- Valid

COASTAL STUDY LOCATOR

NATIONAL FLOOD INSURANCE PROGRAM

Discovery Map

LAKE MICHIGAN COASTAL STUDY

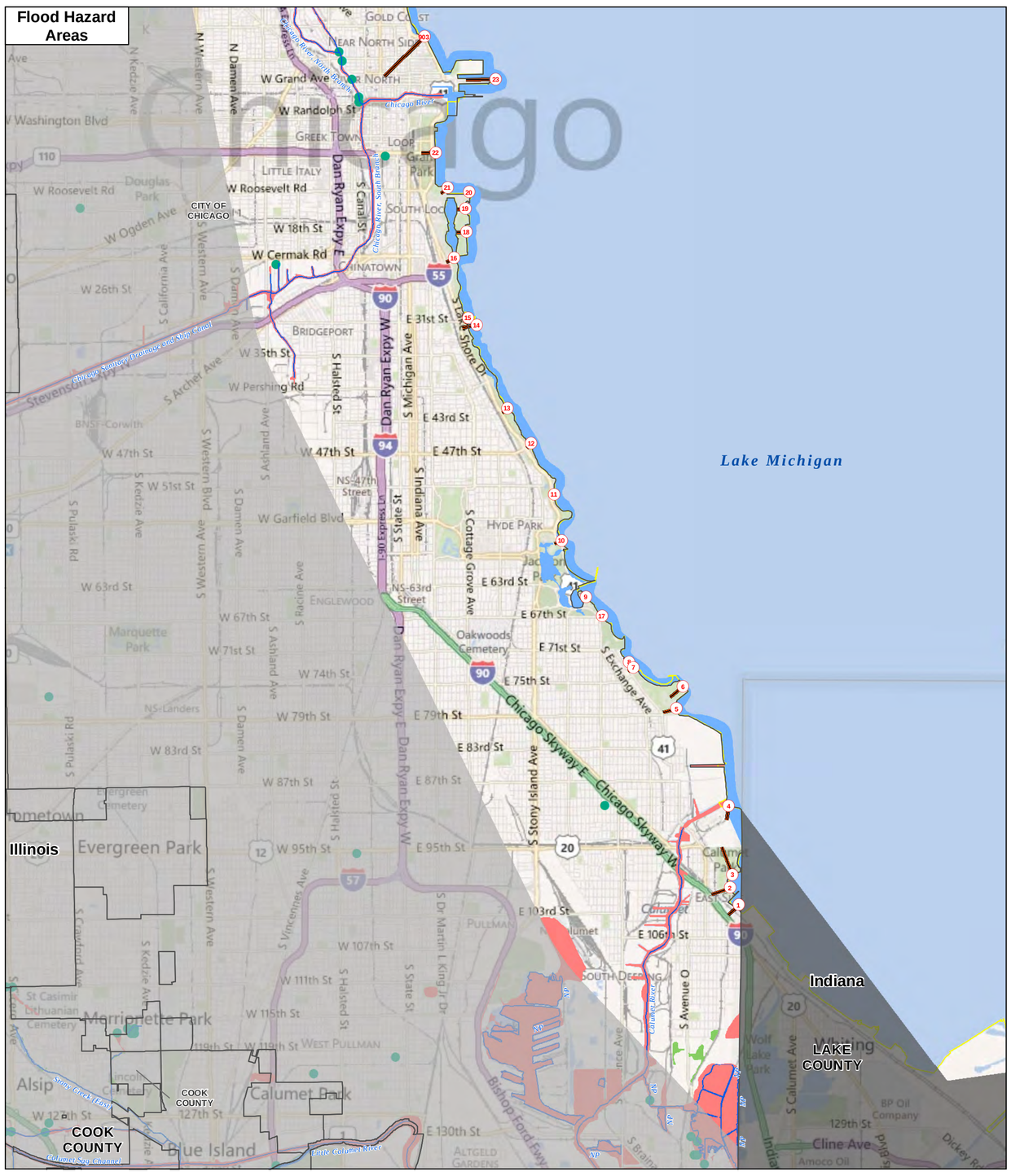
COOK COUNTY, ILLINOIS COASTAL STUDY COMMUNITIES
PAGE 1 of 2

Cook County
Chicago, City of
Evanston, City of
Glencoe, Village of
Kenilworth, Village of
Northfield, Village of
Wilmette, Village of
Winnetka, Village of

STARR

FEMA

Flood Hazard Areas



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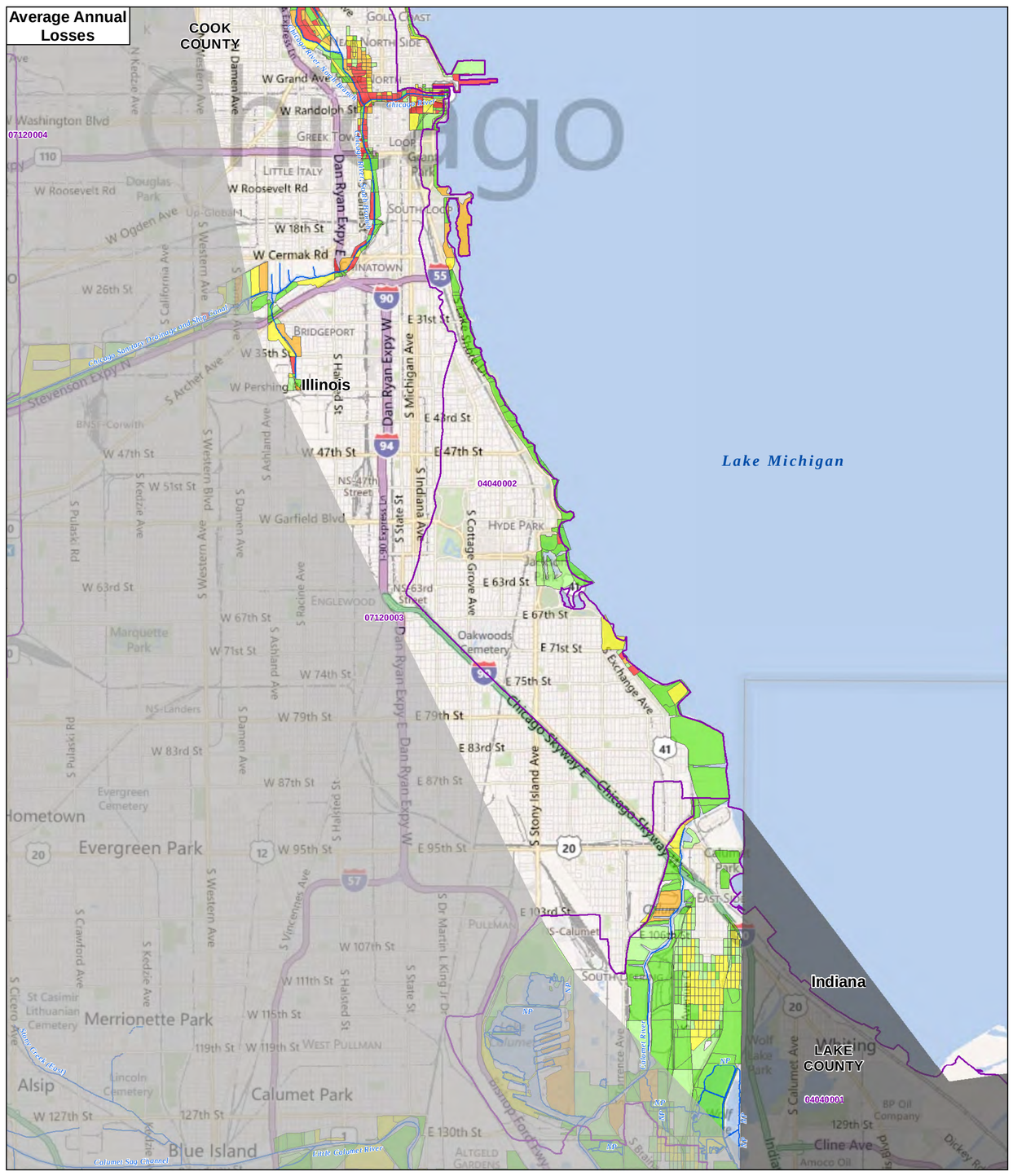

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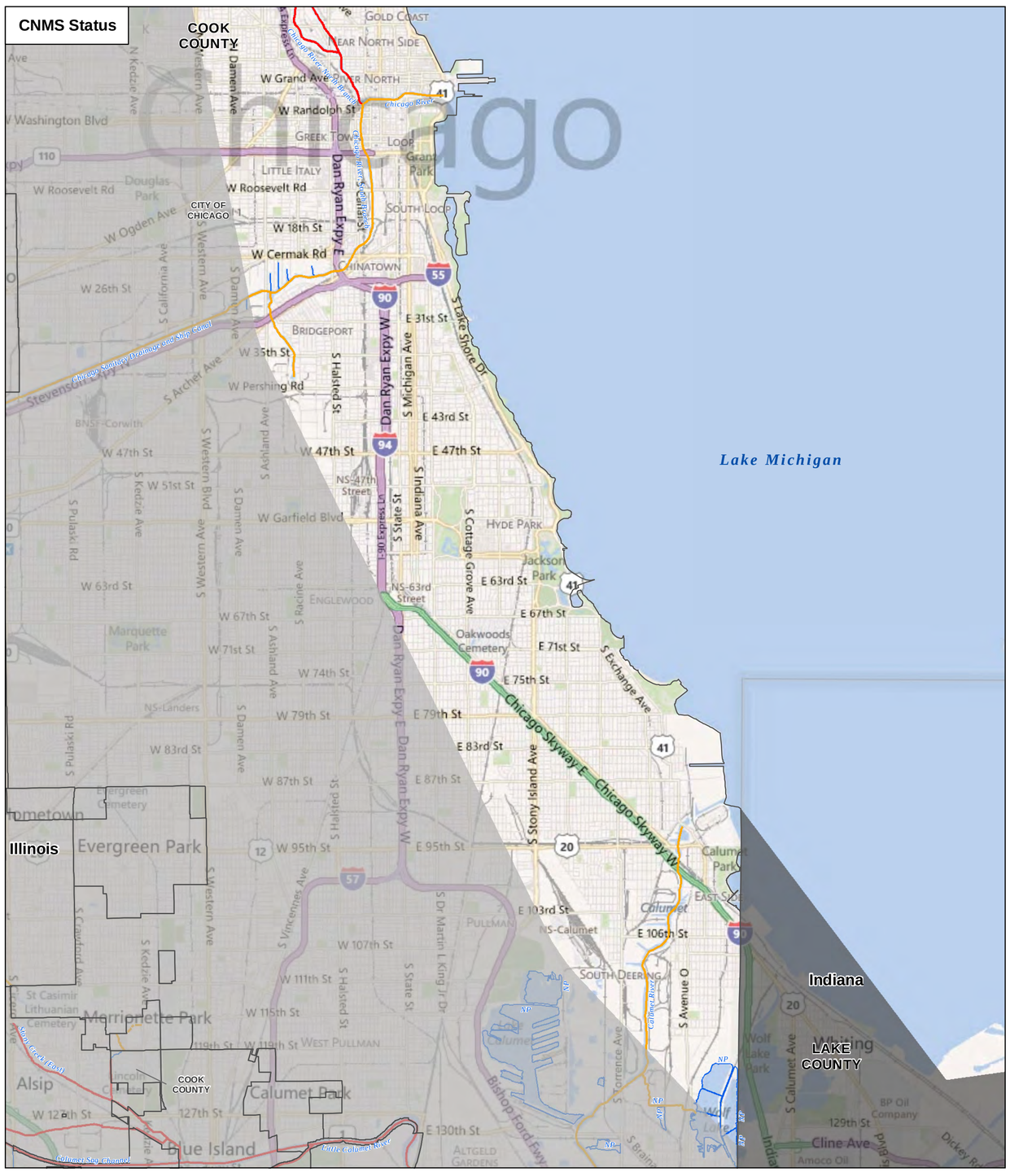

Declared Disasters

Lake	State	Declared County/Area	Declaration Date	Disaster Type	Incident Type	Description
Lake Michigan	IL	Cook (County)	4/25/1967	DR	Tornado	TORNADOES
Lake Michigan	IL	Cook (County)	9/4/1972	DR	Flood	SEVERE STORMS & FLOODING
Lake Michigan	IL	Cook (County)	4/26/1973	DR	Flood	SEVERE STORMS & FLOODING
Lake Michigan	IL	Cook (County)	6/18/1976	DR	Severe Storm(s)	SEVERE STORMS, TORNADOES & FLOODING
Lake Michigan	IL	Cook (County)	6/30/1981	DR	Severe Storm(s)	SEVERE STORMS, FLOODING & TORNADOES
Lake Michigan	IL	Cook (County)	10/7/1986	DR	Flood	SEVERE STORMS & FLOODING
Lake Michigan	IL	Cook (County)	8/21/1987	DR	Flood	SEVERE STORMS & FLOODING
Lake Michigan	IL	Cook (County)	7/9/1993	DR	Flood	SEVERE STORMS & FLOODING
Lake Michigan	IL	Cook (County)	7/25/1996	DR	Severe Storm(s)	SEVERE STORMS AND FLOODING
Lake Michigan	IL	Cook (County)	9/17/1997	DR	Severe Storm(s)	SEVERE STORMS AND FLOODING
Lake Michigan	IL	Cook (County)	9/25/2007	DR	Severe Storm(s)	SEVERE STORMS AND FLOODING
Lake Michigan	IL	Cook (County)	10/3/2008	DR	Severe Storm(s)	SEVERE STORMS AND FLOODING
Lake Michigan	IL	Cook (County)	8/19/2010	DR	Severe Storm(s)	SEVERE STORMS AND FLOODING
Lake Michigan	IL	Cook (County)	3/17/2011	DR	Snow	SEVERE WINTER STORM AND SNOWSTORM
Lake Michigan	IL	Cook (County)	1/16/1979	EM	Snow	BLIZZARDS & SNOWSTORMS
Lake Michigan	IL	Cook (County)	1/8/1999	EM	Snow	IL-WINTER STORM 1/1/99
Lake Michigan	IL	Cook (County)	1/17/2001	EM	Snow	ILLINOIS WINTER SNOW STORMS
Lake Michigan	IL	Cook (County)	9/7/2005	EM	Hurricane	HURRICANE KATRINA EVACUATION

Summary of Shoreline Type

Total Shoreline (mile)	Artificial Shoreline (mile)	Boulders, Bedrock (mile)	Cohesive Clays and Silts (mile)	Sand (mile)	Shingles, Pebbles, Cobbles (Mile)	Other (mile)
51.1	46.7	0.0	0.0	4.3	0.0	0.0

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51.1	31.1	0.0	14.4	5.6	0.0	0.0	0.0

N

0 2.5 5 10 Miles

MAP SYMBOLOGY

LEGEND

- Dams
- LOMCs
- USGS Gages
- Transects
- Shoreline
- Streams
- Watersheds (HUC 8)
- Coastal Barrier Resource System
- Coastal Discovery Area
- Surrounding Counties
- Municipal Boundaries

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- A
- AE
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AAL DATA
Total Average Annualized Losses per Census Block

- Less than $10,000
- $10,001 - $100,000
- $100,001 - $1,000,000
- $1,000,001 - $5,000,000
- Greater than $5,000,000

Coordinated Needs Management Strategy (CNMS)
Validation Status

- Unverified
- Unknown
- Valid

COASTAL STUDY LOCATOR

NATIONAL FLOOD INSURANCE PROGRAM

Discovery Map

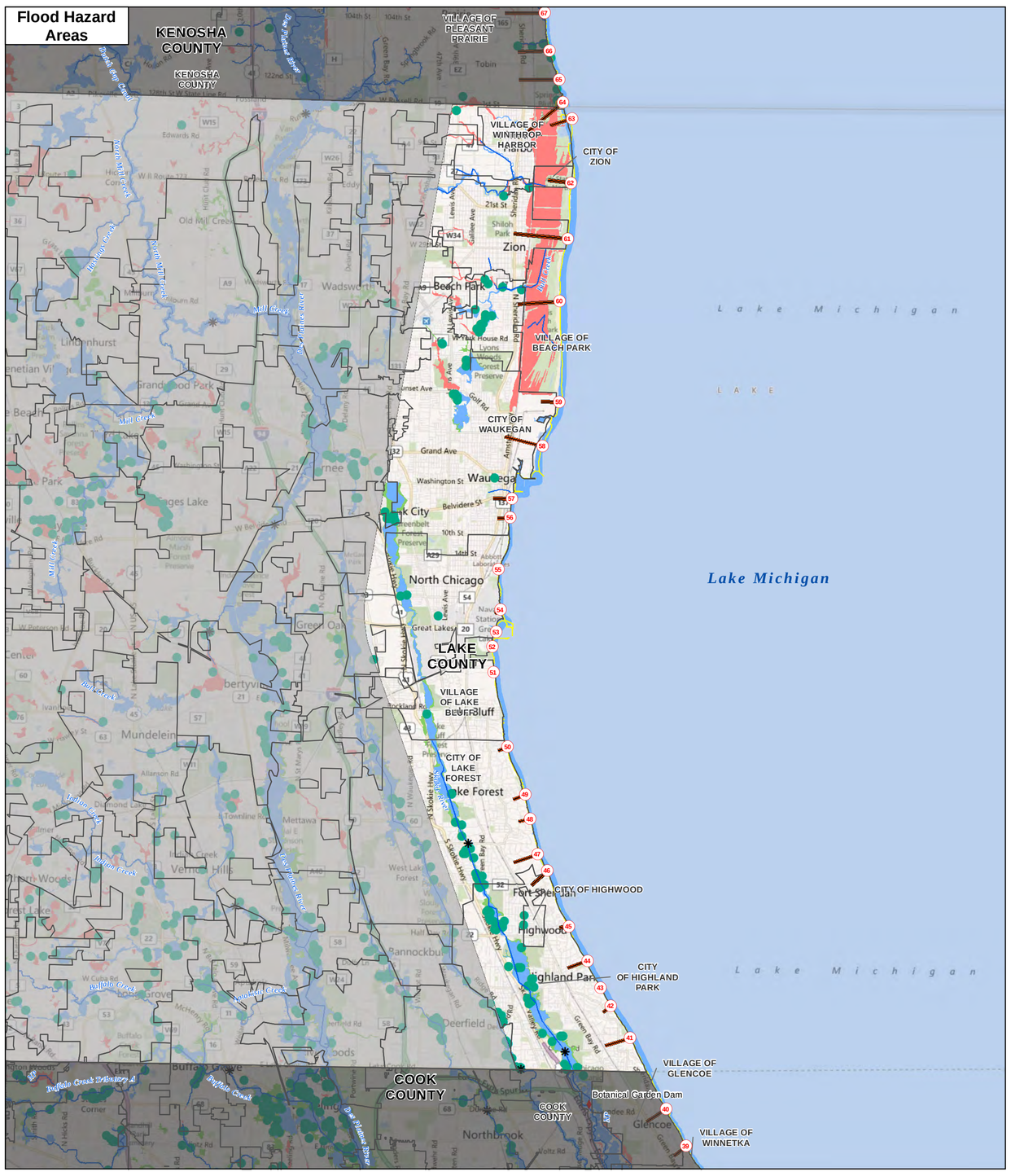
LAKE MICHIGAN COASTAL STUDY

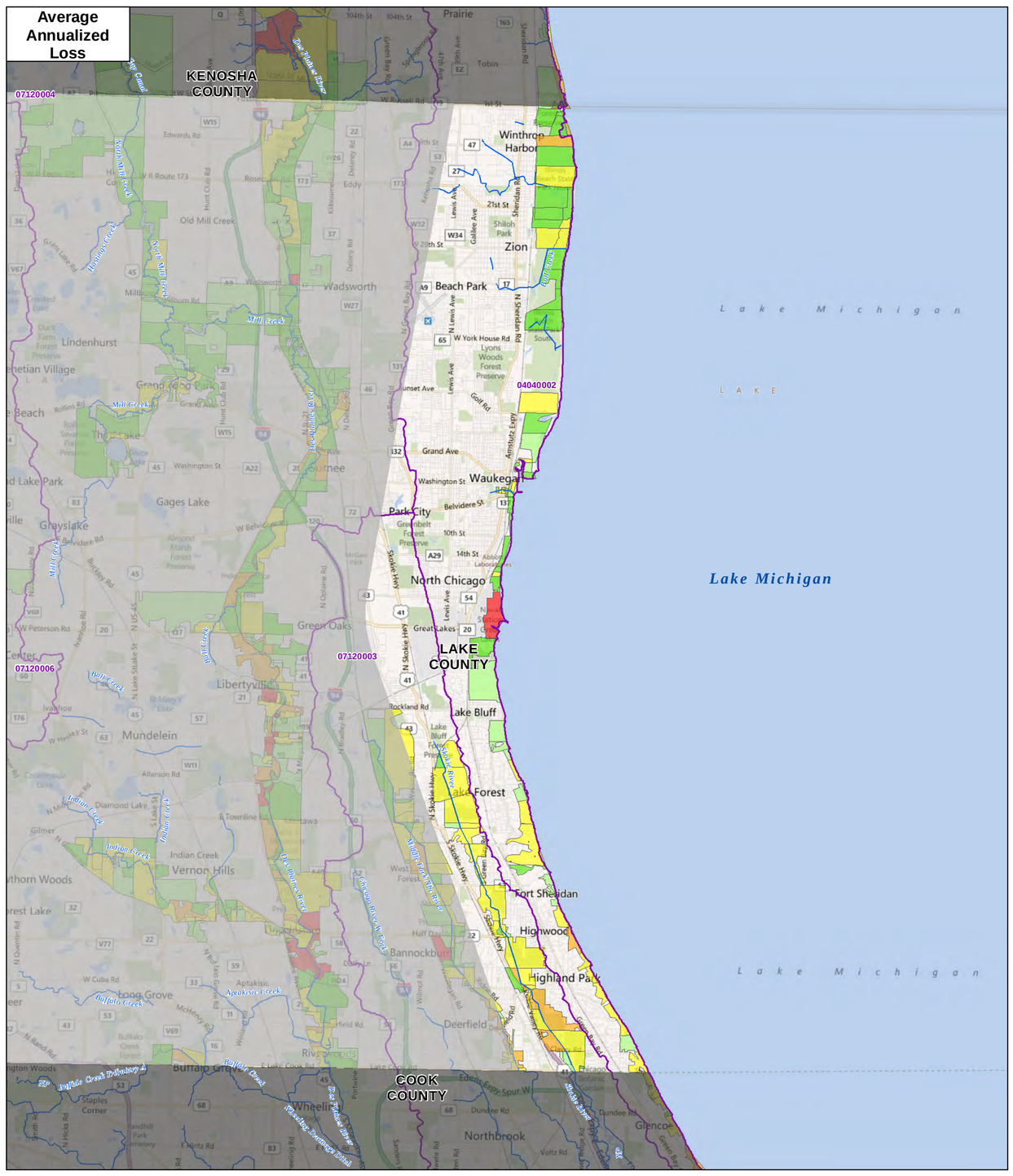
COOK COUNTY, ILLINOIS COASTAL STUDY COMMUNITIES
PAGE 2 of 2

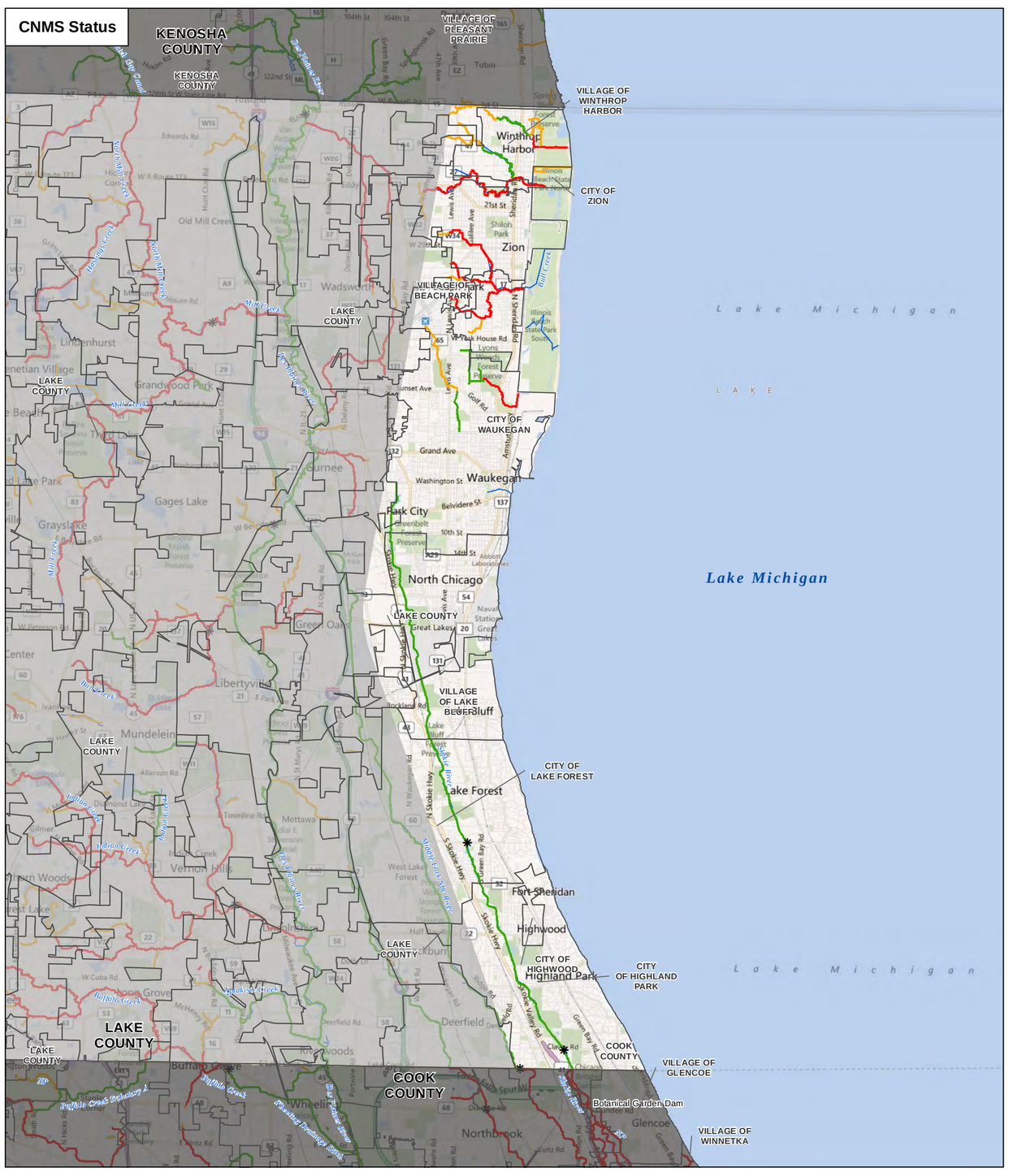
Cook County
Chicago, City of
Evanston, City of
Glencoe, Village of
Kenilworth, Village of
Northfield, Village of
Wilmette, Village of
Winnetka, Village of

STARR

FEMA







Declared Disasters						
Lake	State	Declared County/Area	Declaration Date	Disaster Type	Incident Type	Description
Lake Michigan	IL	Lake (County)	4/25/1965	DR	Tornado	TORNADOES, SEVERE STORMS & FLOODING
Lake Michigan	IL	Lake (County)	4/25/1967	DR	Tornado	TORNADOES
Lake Michigan	IL	Lake (County)	4/26/1973	DR	Flood	SEVERE STORMS & FLOODING
Lake Michigan	IL	Lake (County)	10/7/1986	DR	Flood	SEVERE STORMS & FLOODING
Lake Michigan	IL	Lake (County)	7/9/1993	DR	Flood	SEVERE STORMS & FLOODING
Lake Michigan	IL	Lake (County)	4/23/1996	DR	Severe Storm(s)	SEVERE STORMS AND TORNADOES
Lake Michigan	IL	Lake (County)	9/25/2007	DR	Severe Storm(s)	SEVERE STORMS AND FLOODING
Lake Michigan	IL	Lake (County)	6/24/2008	DR	Severe Storm(s)	SEVERE STORMS AND FLOODING
Lake Michigan	IL	Lake (County)	3/17/2011	DR	Snow	SEVERE WINTER STORM AND SNOWSTORM
Lake Michigan	IL	Lake (County)	1/16/1979	EM	Snow	BLIZZARDS & SNOWSTORMS
Lake Michigan	IL	Lake (County)	1/8/1999	EM	Snow	IL-WINTER STORM 1/1/99
Lake Michigan	IL	Lake (County)	1/17/2001	EM	Snow	ILLINOIS WINTER SNOW STORMS
Lake Michigan	IL	Lake (County)	9/7/2005	EM	Hurricane	HURRICANE KATRINA EVACUATION
Lake Michigan	IL	Lake (County)	3/13/2008	EM	Snow	RECORD SNOW AND NEAR RECORD SNOW

Mitigation Action		
Name of Plan	Plan Expiration Date	Identified Hazard Mitigation Action
Lake County All Natural Hazards Mitigation Plan, june 2012	1/5/2012	Improve natural hazards public information efforts
Lake County All Natural Hazards Mitigation Plan, june 2012	1/5/2012	SMC flood mitigation projects
Lake County All Natural Hazards Mitigation Plan, june 2012	1/5/2012	Development of flood stage maps
Lake County All Natural Hazards Mitigation Plan, june 2012	1/5/2012	Continue to map natural hazard impacts and continue vulnerability assessments
Lake County All Natural Hazards Mitigation Plan, june 2012	1/5/2012	Continued implementation of the WDO and NFIP requirements.
Lake County All Natural Hazards Mitigation Plan, june 2012	1/5/2012	Improve capacity of drainage systems
Lake County All Natural Hazards Mitigation Plan, june 2012	1/5/2012	Improve maintenance programs for drainage systems
Lake County All Natural Hazards Mitigation Plan, june 2012	1/5/2012	Improve building codes and building code enforcement.
Lake County All Natural Hazards Mitigation Plan, june 2012	1/5/2012	Reduce inflow and infiltraton to protect against sewer backups.

N

0 3 6 12 Miles

MAP SYMBOLOGY

LEGEND

- Dams
- LOMCs
- USGS Gages
- Transects
- Shoreline
- Streams
- Watersheds (HUC 8)
- Coastal Barrier Resource System
- Coastal Discovery Area
- Surrounding Counties
- Municipal Boundaries

EFFECTIVE SFHA

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- AE
- 0.2% PCT ANNUAL CHANCE FLOOD

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Total Average Annualized Losses per Census Block

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- $100,001 - $1,000,000
- $1,000,001 - $5,000,000
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Coordinated Needs Management Strategy (CNMS)
Validation Status

- Unverified
- Unknown
- Valid

COASTAL STUDY LOCATOR

NATIONAL FLOOD INSURANCE PROGRAM

Discovery Map

LAKE MICHIGAN COASTAL STUDY

LAKE COUNTY, ILLINOIS COASTAL STUDY COMMUNITIES

Lake County
Beach Park, Village of
Highland Park, City of
Highwood, City of
Lake Bluff, Village of
Lake Forest, City of
North Chicago, City of
Waukegan, City of
Winthrop Harbor, Village of
Zion, City of

STARR

FEMA

ATTACHMENT D

PROPOSED DRAFT TRANSECTS FIGURES

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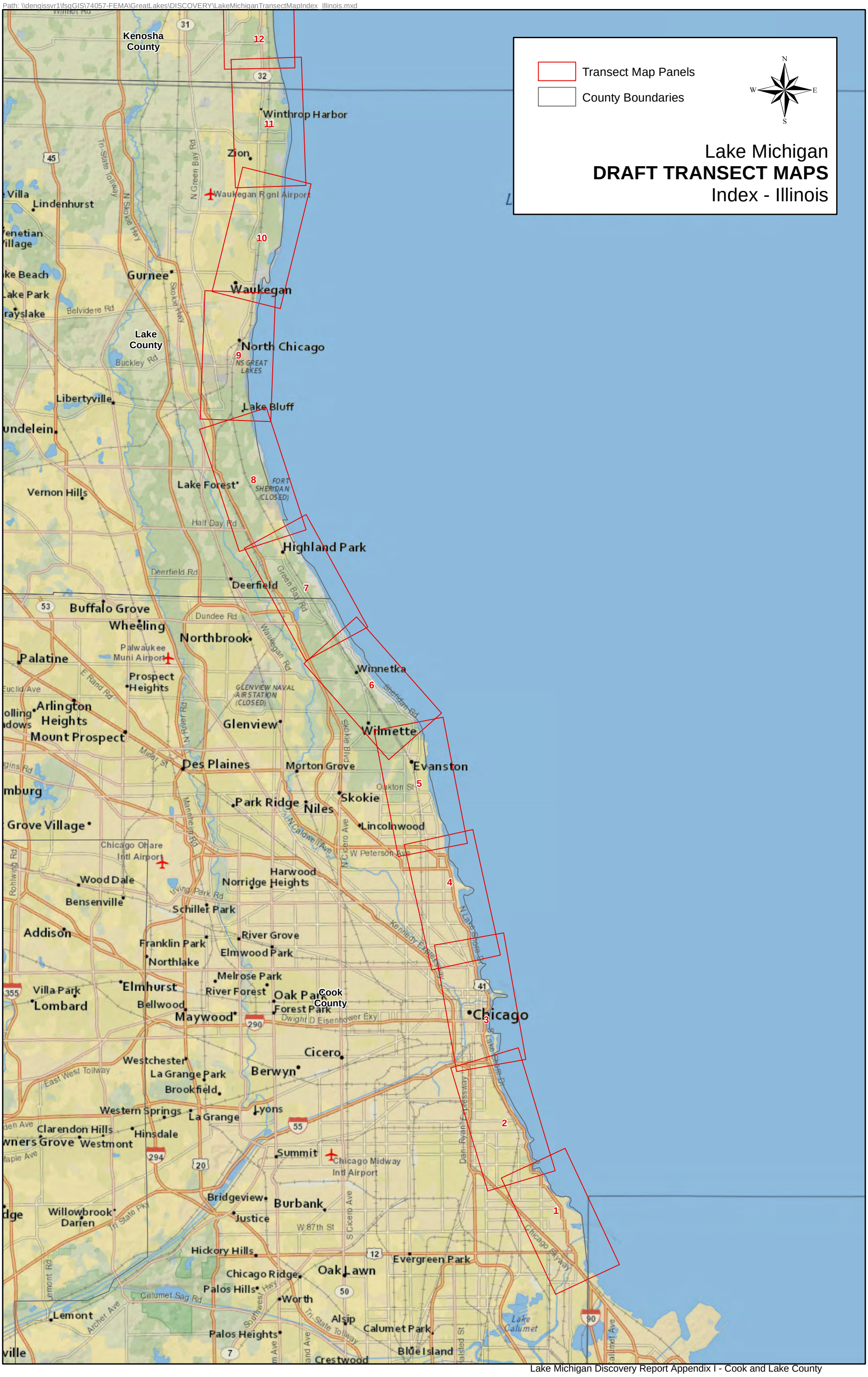

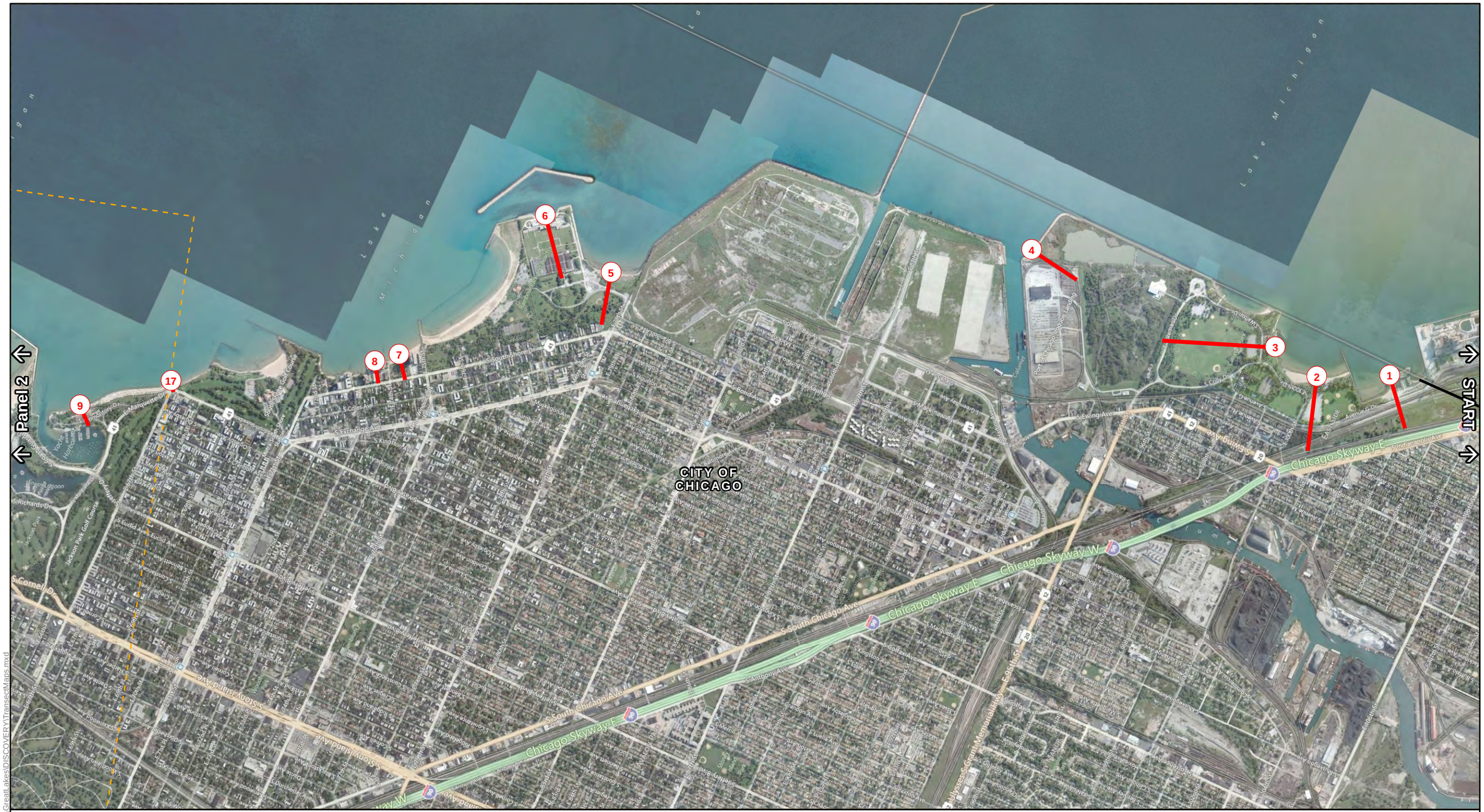

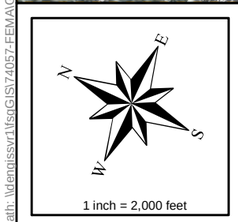

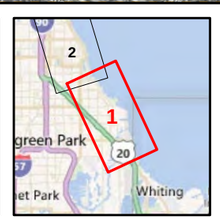

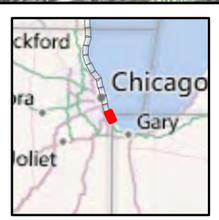

Transects

Adjoining Panel Edge

Political Boundary

Basemap Source: Microsoft BING map service

COUNTIES
COOK COUNTY

COMMUNITIES
CITY OF CHICAGO

Lake Michigan
DRAFT TRANSECTS
Panel 1 of 127

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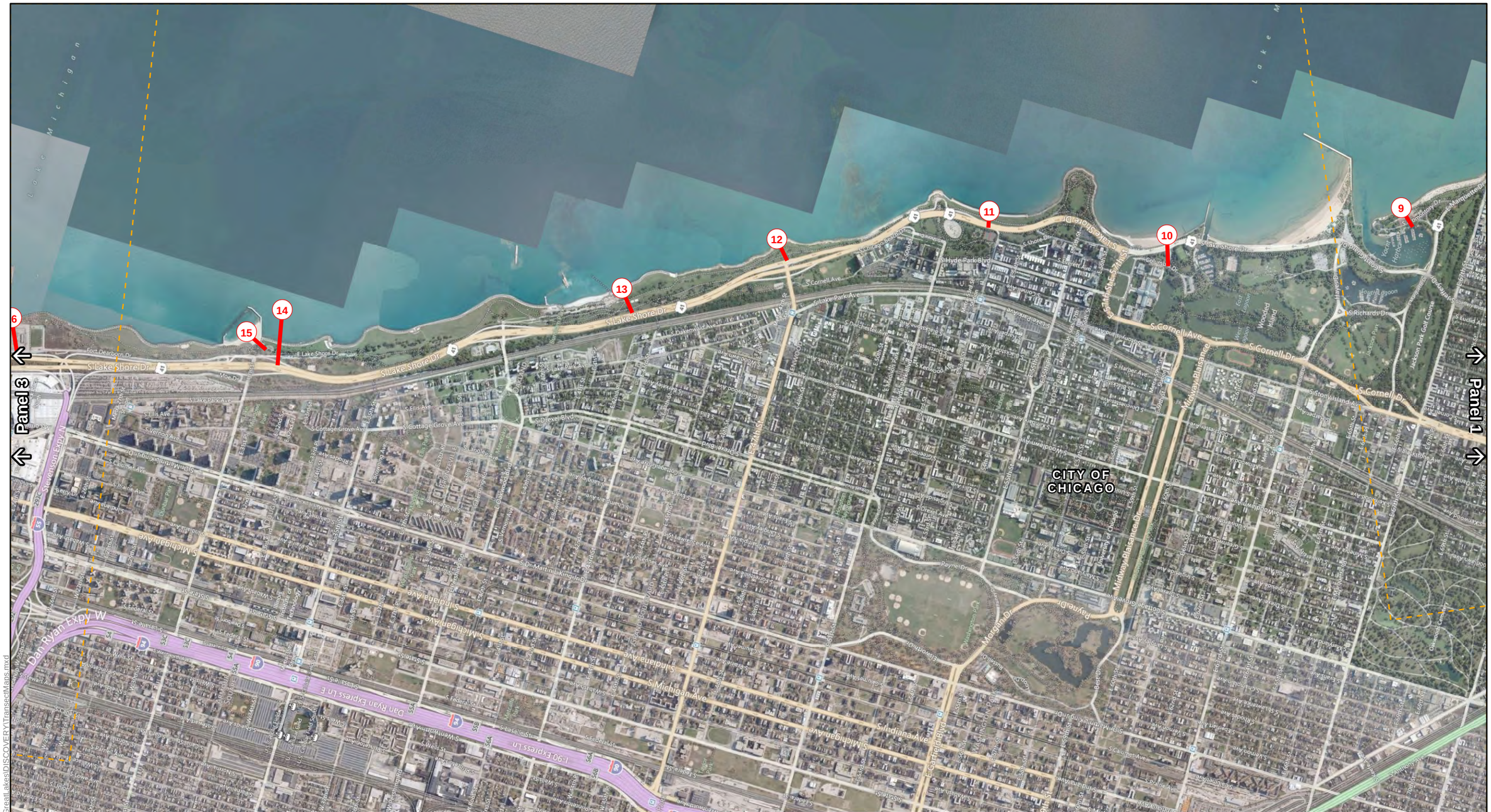
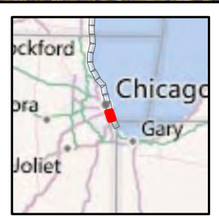


1 inch = 2,000 feet



Transects

Adjoining Panel Edge

Political Boundary

Basemap Source: Microsoft BING map service

COUNTIES
COOK COUNTY

COMMUNITIES
CITY OF CHICAGO

Lake Michigan
DRAFT TRANSECTS
Panel 2 of 127

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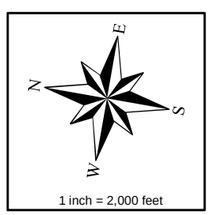

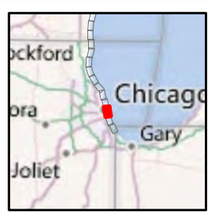

Transects
Adjoining Panel Edge
Political Boundary

Basemap Source: Microsoft BING map service

COUNTIES
COOK COUNTY

COMMUNITIES
CITY OF CHICAGO

Lake Michigan
DRAFT TRANSECTS
Panel 3 of 127

1 inch = 2,000 feet

Transects

Adjoining Panel Edge

Political Boundary

Basemap Source: Microsoft BING map service

COUNTIES
COOK COUNTY

COMMUNITIES
CITY OF CHICAGO

Lake Michigan
DRAFT TRANSECTS
Panel 4 of 127

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Lake Michigan
Lake Michigan
33
32
31
30
901
900
29
28
Panel 6
Panel 4
VILLAGE OF WILMETTE
CITY OF EVANSTON
CITY OF CHICAGO
VILLAGE OF SKOKIE
Sheridan Rd
Ridge Ave
Green Bay Rd
N Ridge Blvd
N Western Ave
Dempster St
Chicago Ave
Clark St
Forest Ave
Michigan Ave
Sherman Ave
Simpson St
Hinman Ave
Judson Ave
Lake Shore Blvd
Eastlake Terrace
N Greenview Ave
N Paulina St
Washtenaw Ave
Robert A Black Golf Course
Winnetka
Wilmette
Evanston
Skokie
Lincolnwood
Rockford
Chicago
Gary
Joliet
1 inch = 2,000 feet
Transects
Adjoining Panel Edge
Political Boundary
Basemap Source: Microsoft BING map service
COUNTIES
COOK COUNTY
COMMUNITIES
CITY OF CHICAGO
CITY OF EVANSTON
VILLAGE OF SKOKIE
VILLAGE OF WILMETTE
Lake Michigan
DRAFT TRANSECTS
Panel 5 of 127
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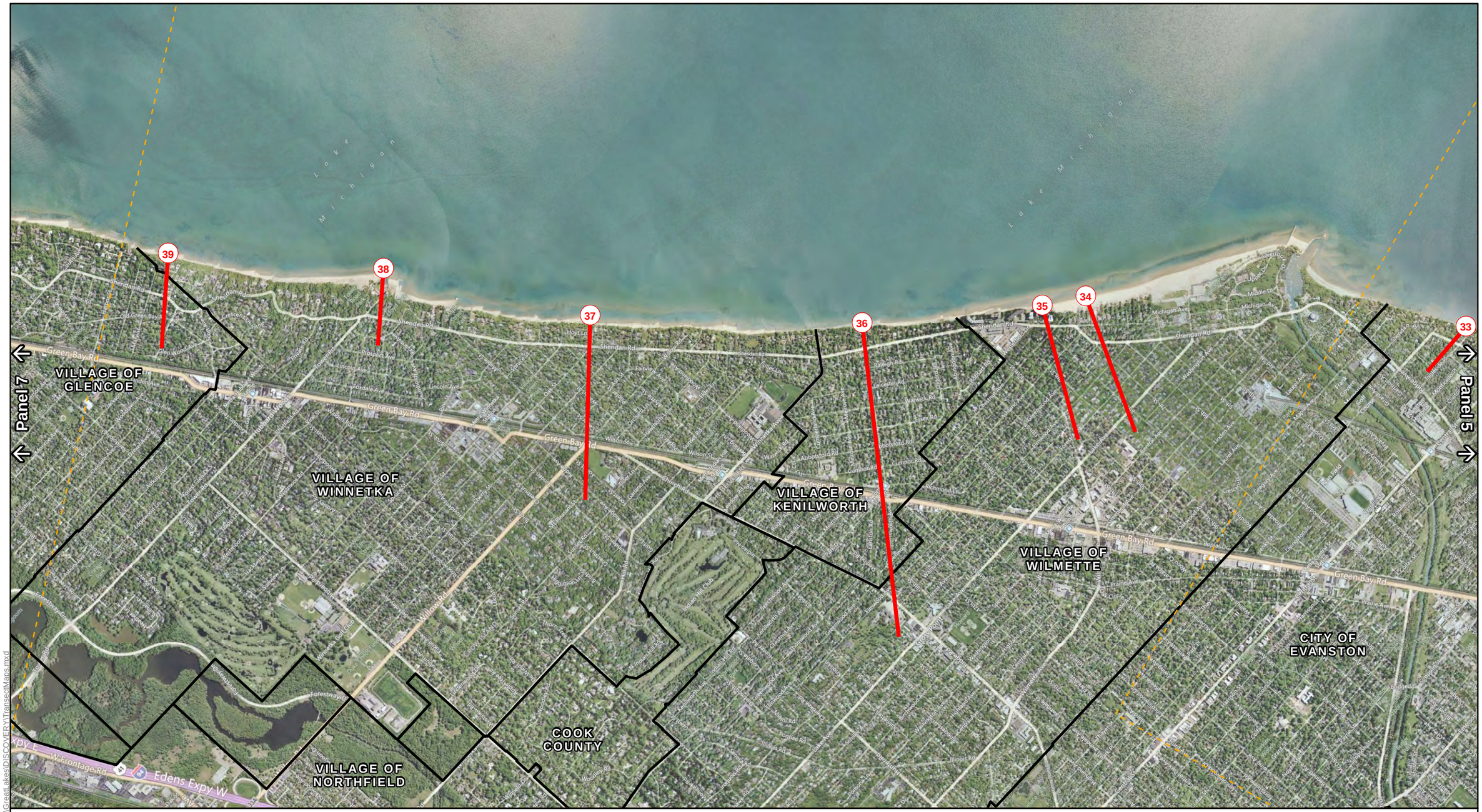

1 inch = 2,000 feet

Transects

Adjoining Panel Edge

Political Boundary

Basemap Source: Microsoft BING map service

COUNTIES

COOK COUNTY

COMMUNITIES

CITY OF EVANSTON
VILLAGE OF GLENCOE
VILLAGE OF KENILWORTH
VILLAGE OF NORTHFIELD
VILLAGE OF SKOKIE
VILLAGE OF WILMETTE
VILLAGE OF WINNETKA

Lake Michigan
DRAFT TRANSECTS
Panel 6 of 127

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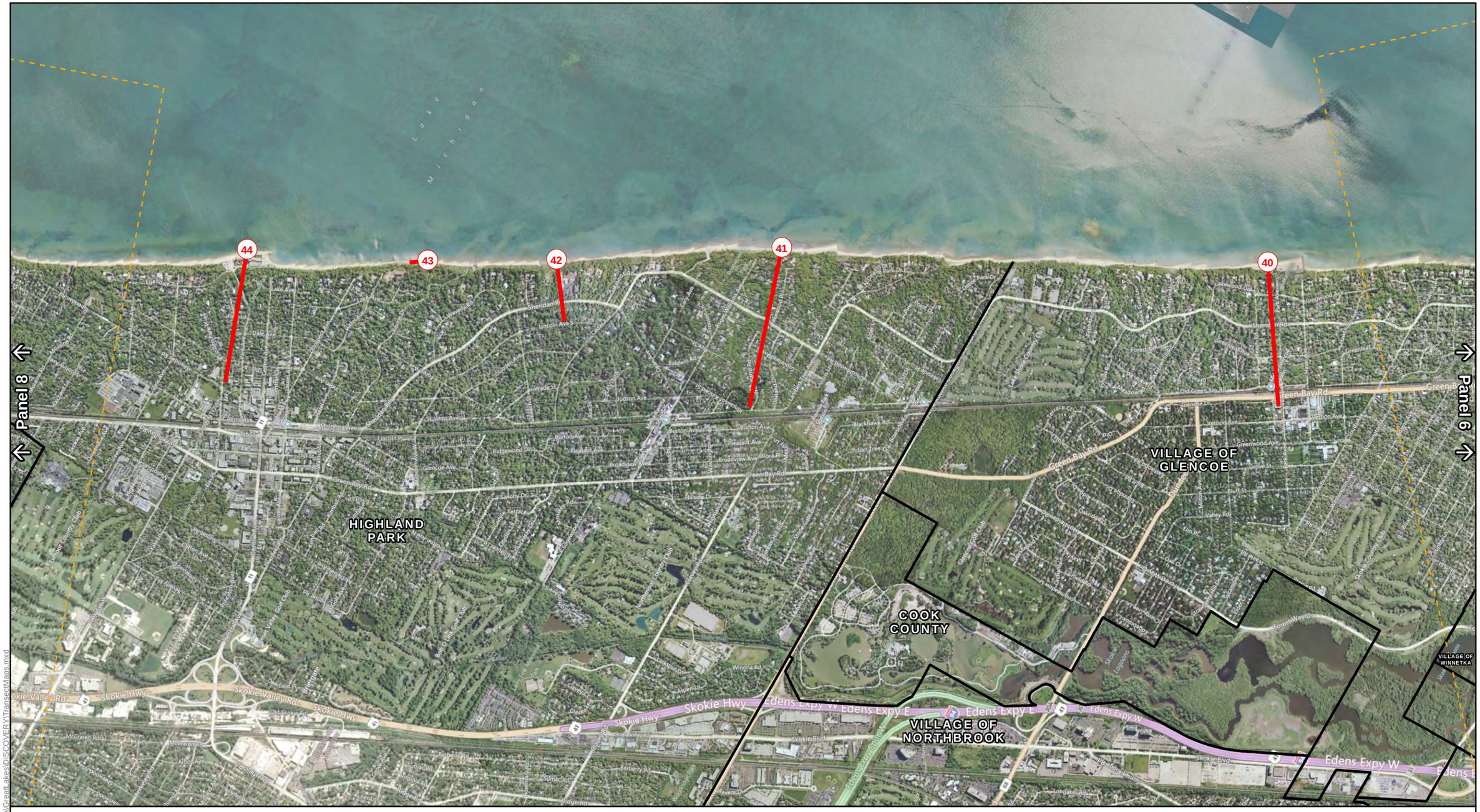
Lake Michigan
44
43
42
41
40
Panel 8
Panel 6
HIGHLAND PARK
VILLAGE OF GLENCOE
COOK COUNTY
VILLAGE OF NORTHBROOK
VILLAGE OF WINNETKA
St Johns Ave
Green Bay Rd
Skokie Hwy
Skokie Valley Rd
Edens Expy W
Edens Expy E
Sheridan Rd
Lincoln Ave
Old Green Bay Rd
Skokie Blvd
Dundee Rd
Lake Ave
Central Ave
Ridge Rd
Barberry Rd
Winona Rd
Ridgewood Dr
Glencoe Ave
Pleasant Ave
Broadview Ave
Buston Ave
Burton Ave
Wade St
Judson Ave
Baldwin Rd
Blackhawk Rd
Indian Tree Ct
Hillside Dr
Saxony Dr
Terrace
Vernon Ave
Greenwood Ave
Grove St
Bluff St
Valley Rd
Elm Pl
Oakridge Rd
Forest Ave
Lakewood Ave
Longwood Ave
Dale Ave
Egandale Rd
Deerfield Rd
Old Skokie Rd
McCraren Rd
Alpine Ave
Birnam Wood
Sunset Ridge Rd
Elder Ln
Aspen Ln
Forestway Dr
Longlake Rd
Skokie Lagoons
Skokie Valley Golf Club
Glencoe Golf Club
Sunset Ridge Country Club
Onwentsia Club
Lake Shore Country Club
Bob O Link Golf Club
Northmoor Country Club
Skokie Country Club
Deerfield Park District
Glencoe Park District
Highland Park
Highwood
Deerfield
Northbrook
Glencoe
Northfield
Winnetka
Glenview
Rockford
Chicago
Gary
Joliet
1 inch = 2,000 feet
Transects
Adjoining Panel Edge
Political Boundary
Basemap Source: Microsoft BING map service
COUNTIES
COOK COUNTY
LAKE COUNTY
COMMUNITIES
HIGHLAND PARK
HIGHWOOD
VILLAGE OF GLENCOE
VILLAGE OF NORTHBROOK
VILLAGE OF NORTHFIELD
VILLAGE OF WINNETKA
Lake Michigan
DRAFT TRANSECTS
Panel 7 of 127
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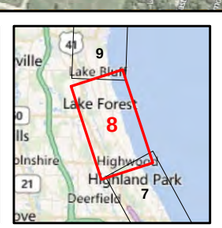

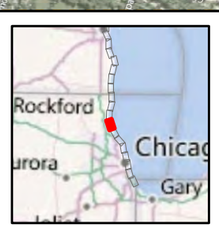

Transects

Adjoining Panel Edge

Political Boundary

Basemap Source: Microsoft BING map service

COUNTIES
LAKE COUNTY

COMMUNITIES
HIGHLAND PARK
HIGHWOOD
LAKE BLUFF
LAKE FOREST

Lake Michigan
DRAFT TRANSECTS
Panel 8 of 127

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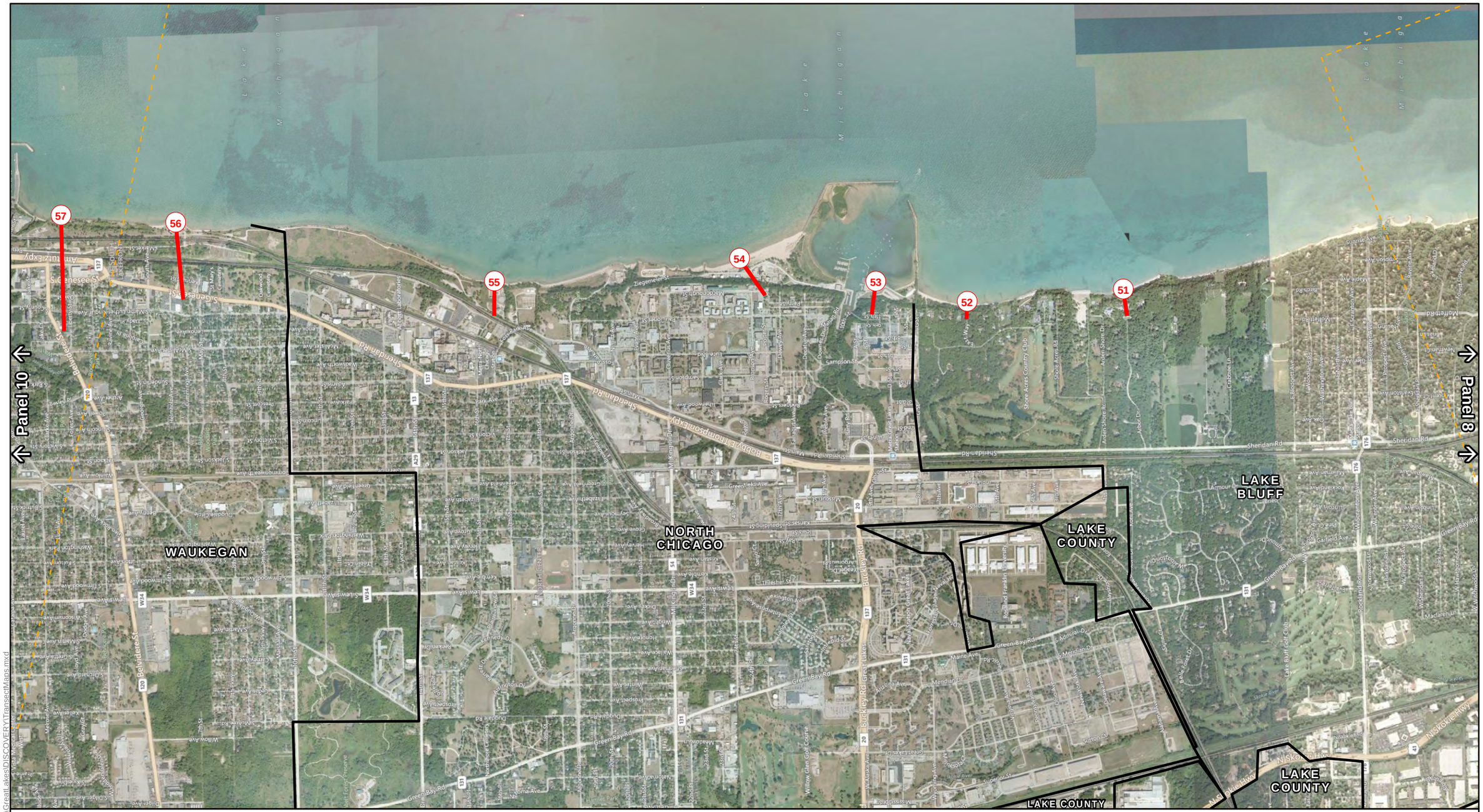

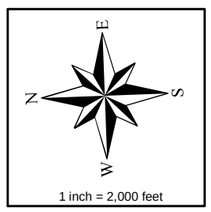

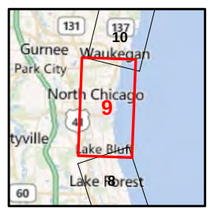

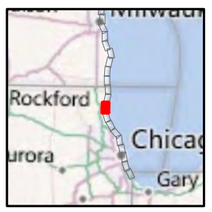

Transects

Adjoining Panel Edge

Political Boundary

Basemap Source: Microsoft BING map service

COUNTIES
LAKE COUNTY

COMMUNITIES
LAKE BLUFF
LAKE FOREST
NORTH CHICAGO
WAUKEGAN

Lake Michigan
DRAFT TRANSECTS
Panel 9 of 127

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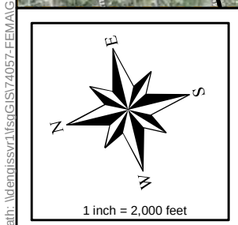
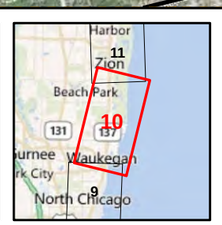
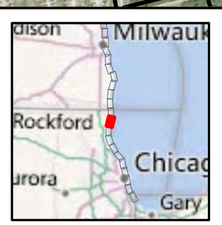






Transects

Adjoining Panel Edge

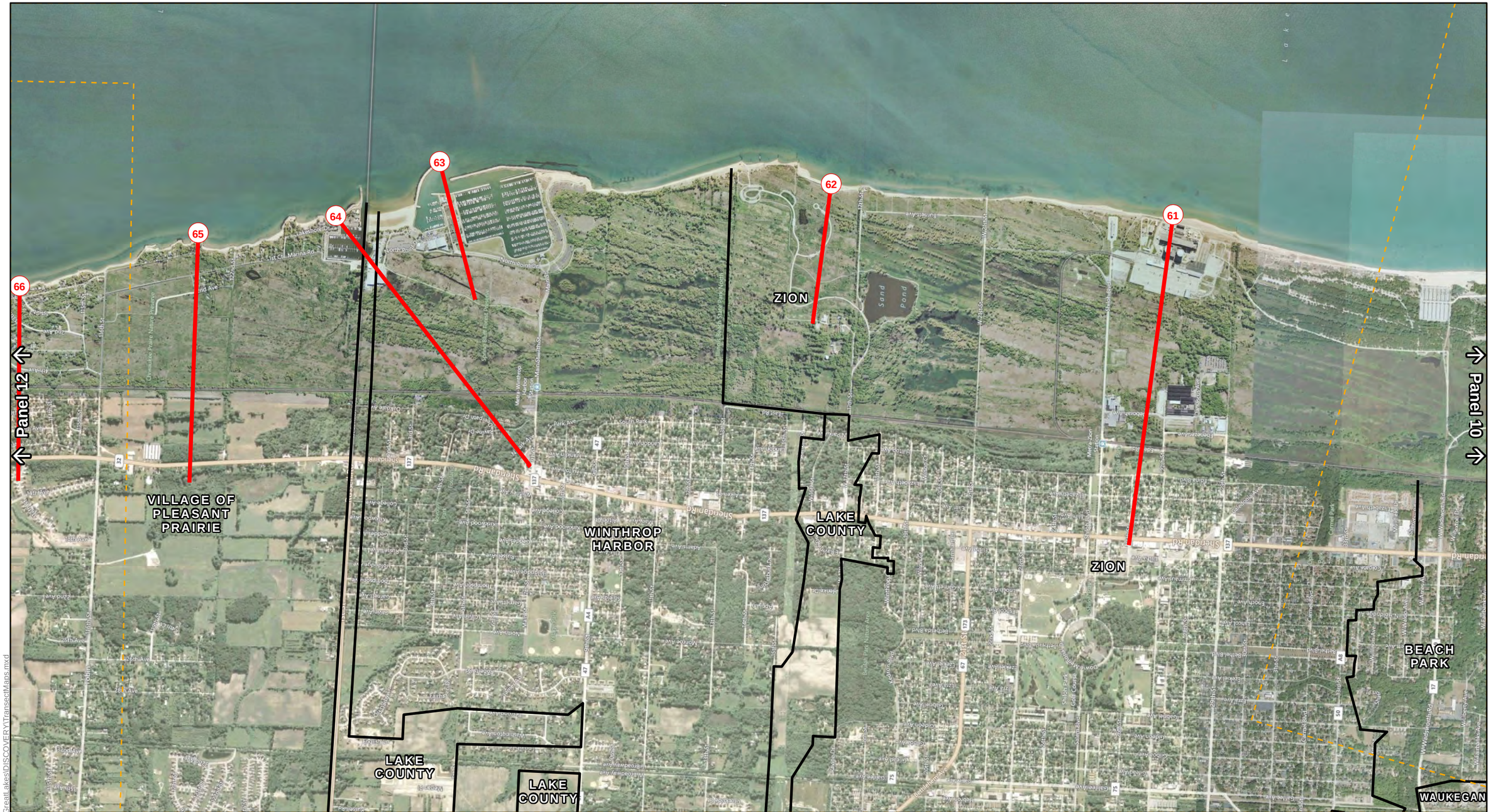
Political Boundary

Basemap Source: Microsoft BING map service

COUNTIES
LAKE COUNTY

COMMUNITIES
BEACH PARK
WAUKEGAN
ZION

Lake Michigan
DRAFT TRANSECTS
Panel 10 of 127



Transects

Adjoining Panel Edge

Political Boundary

Basemap Source: Microsoft BING map service

COUNTIES

KENOSHA COUNTY
LAKE COUNTY

COMMUNITIES

BEACH PARK
VILLAGE OF PLEASANT PRAIRIE
WAUKEGAN
WINTHROP HARBOR
ZION

Lake Michigan
DRAFT TRANSECTS
Panel 11 of 127

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ATTACHMENT E

STAKEHOLDER COMMENTS FROM DISCOVERY MEETING

Stakeholder Comments from Discovery Meeting

ID (Corresponds to Final Discovery Map)	State	County	Location of Comment	FIPS	CID	Comment (from Discovery Meetings or on draft Discovery Map/transect figures)[i]	Type
COO-5	Illinois	Cook	Evanston, City of	17031	170090	300 yards by 49 feet: erosion due to wave action	General Comment
COO-6	Illinois	Cook	Evanston, City of	17031	170090	Wave action could close road	General Comment
COO-7	Illinois	Cook	Evanston, City of	17031	170090	Critical facility; Wilmette Water Plant	General Comment
COO-8	Illinois	Cook	Evanston, City of	17031	170090	Evanston Water Utility; 15 foot waves last year; Lake Shore Drive is closed	General Comment
LAK-10	Illinois	Lake	North Chicago, City of	17097	170384	Potential addition of Water Treatment Plant	General Comment
LAK-11	Illinois	Lake	North Chicago, City of	17097	170384	Public beach; May need additional wave protection	General Comment
LAK-12	Illinois	Lake	Waukegan, City of	17097	170397	Harbor of Refuge	General Comment
LAK-13	Illinois	Lake	Zion, City of	17097	170399	Decommissioned Nuclear Plant- 2020	General Comment
LAK-142	Illinois	Lake	Lake Forest, City of	17097	170374	Eroding	General Comment
LAK-9	Illinois	Lake	North Chicago, City of	17097	170384	Abbott Labs; May need additional wave protection	General Comment
LAK-TR-5	Illinois	Lake	Beach Park, Village of	17097	171022	Stakeholder indicated suggested transect location; no comment	Transect Comment
LAK-TR-6	Illinois	Lake	Winthrop Harbor, Village of	17097	170398	Stakeholder indicated suggested transect location; no comment	Transect Comment

[i] Due to the various methods used to collect flood risk information and transect comments, including discussions during Discovery Meetings, maps marked up with comments, and emails or letters sent containing comments, the meaning of some comments may not be clear in this table and are subject to interpretation.

ATTACHMENT F

COOK AND LAKE COUNTY DISCOVERY MEETING DOCUMENTS

Discovery Meeting Agenda

Discovery Meeting Sign-In Sheets

Discovery Meeting Minutes

Discovery Meeting Presentation

Project Name:	FEMA Region V Discovery
Meeting:	COOK, LAKE COUNTIES Great Lakes Coastal Discovery Meeting
Date and Time:	THURSDAY, AUGUST 23, 2012; 9:00 – 11:00 AM CT
Place:	NORTHWESTERN UNIVERSITY – THE NORRIS CENTER
Facilitator:	FRANK SHOCKEY, SUZANNE VERMEER, FEMA BRIAN CAUFIELD, JASPREET RANDHAWA, SCOTT BANJAVCIC, STARR

Discovery Meeting Agenda

1. **Why are we here? (9:00 – 9:15 AM CT)**
   - Great Lakes Coastal Flood Study Overview and Schedule
   - Discovery Process and Outcomes

2. **Coastal mapping and flood risk topics to be aware of (9:15 – 9:40 AM CT)**

3. **How does this apply to my community? (9:40 – 9:50 AM CT)**

4. **Interactive Session A (9:50 – 10:15 AM CT)**
   - View and Discuss Local Coastal Areas of Concern Using the Discovery Map and Community Risk MAP Questionnaire

5. **Hazard mitigation opportunities and grant funding (10:15 – 10:25 AM CT)**

6. **Interactive Session B (10:25 -10:50 AM CT)**
   - Discuss Mitigation Action Opportunities
   - Introduce the Mitigation Action Form and Mitigation Action Tracker

7. **Wrap Up (10:50 – 11:00 AM CT)**
   - Review of action items and next steps

Optional Interactive Stations (30 minutes - 1hr following meeting)

- *Draft Transect Map Station: Talk to technical staff about draft transects and view draft transects in GIS*
- *Mitigation Resources, Strategies, and Actions Station: Talk with FEMA and State staff about areas of concern and potential mitigation actions to help reduce risk. Fill out Mitigation Action Form.*

AUGUST 23, 2012 COOK, LAKE COUNTIES DISCOVERY MEETING SIGN-IN SHEET

Please verify contact information and intial meeting attendance.

No.	Sign Intials	Affiliation	Title	Name First	Name Last	Street Address	Phone	Email Address
1		City of Lake Forest	Engineering Assistant	Brian	Joyce	800 North Field Drive Lake Forest, IL 60045	847.810.3554	JoyceB@cityoflakeforest.com
2		FEMA Region V	Natural Hazards Program Specialist	Frank	Shockey	536 South Clark St., 6th Floor Chicago, IL 60605	312-408-5321	frank.shockey@dhs.gov
3	SW	FEMA Region V	Engineer	Suzanne	Vermeer	536 South Clark St., 6th Floor Chicago, IL 60605		suzanne.vermeer@fema.dhs.gov
4	JC	Illinois Department of Natural Resources		James	Casey	160 North LaSalle, Suite S-703 Chicago, IL 60601	312.793.5947	James.casey@illinois.gov
5	PH	Illinois State Water Survey	Outreach Coordinator	Pat	Hubbartt	2204 Griffith Drive Champaign, IL 61820-7495	217-649-9049	hubbartt@illinois.edu
6		Lake County Stormwater Management Commission	Regulatory Engineering Supervisor	Joanna	Colleti	500 W. Winchester Libertyville, IL 60048	847-377-7701	jcolletti@lakecountyil.gov
7		STARR	Engineer	Scott	Banjavcic	125 South Wacker Drive Chicago, IL 60606	(312) 346-5000	banjavcics@cdmsmith.com
8		STARR	Engineer	Brian	Caufield	50 Hampshire Street Cambridge, MA 02139	(617) 452-6000	caufieldba@cdmsmith.com
9		STARR	Engineer	Jaspreet	Randhawa	125 South Wacker Drive Chicago, IL 60606	(312) 346-5000	randhawajg@cdmsmith.com
10								

AUGUST 23, 2012 COOK, LAKE COUNTIES DISCOVERY MEETING SIGN-IN SHEET

Please verify contact information and intial meeting attendance.

No.	Sign Intials	Affiliation	Title	Name First	Name Last	Street Address	Phone	Email Address
11	SC	WINNETKA	ASST. VILLAGE ENG.	SUSAN	CHEN	1390 WILLOW	847-716-3532	schen@winnetka.org
12	CV	Glencoe	Village Engr	Christine	VanDorpack	675 Village Ct Glencoe	847-835-411	christv@villageofglenc .org
13	KL	EVANSTON WATER	Water Production Supt	KEVIN	LOOKIS	555 LINCOLN EVANSTON 60201	847-448 8198	klookis@cityofevanston.org
14	JSG	MWRD	Senior Civil Eng.	Jonathan	Graboy	111 E Erie Chicago IL 60611	312 751 4015	jonathan.graboy@mwrd.org
15	TJH	COOK CO. DEPT. HOMELAND SECURITY	OPERATIONS MANAGER	THOMAS	HARDIN	69. W. WASHINGTON CH60 60602	312.603. 8180	THOMAS.HARDIN@ COOKCOUNTYIL.GOV
16	JKM	CITY OF EVANSTON	BUILDING OFFICIAL	JEFF	MURPHY	2100 RIDGE AVE ROOM 3500 EV. IL 60201	847 448-8030	JTMURPHY@ CITYOFEVANSTON.ORG
17	SDR	COOK COUNTY HIGHWAY	DRAINAGE SECTION MGR.	STEVE	RODGERS	69 W WASHINGTON SUITE 2100 CHICAGO, IL 60602	312 603 1707	STEVE.RODGERS @COOKCOUNTYIL.GOV
18	SF	IL State Water Survey	Post Accessing Manager	Shelly	Fuller	2204 Griffith Dr. Champaign, IL 61820	217-649-9419	mlfuller@ illinois.edu
19	SJ	Northwestern Univ Energ Mgt	Commander Emergency Services	SHAUN	JOHNSON	1819 Hinman Ave Evanston, IL. 60208	847-774-0226	SJ@ NORTHWESTERN.EDU
20								

AUGUST 23, 2012 COOK, LAKE COUNTIES DISCOVERY MEETING SIGN-IN SHEET

Please verify contact information and intial meeting attendance.

No.	Sign Intials	Affiliation	Title	Name First	Name Last	Street Address	Phone	Email Address
21	MV	City of Evanston	GIS Analyst	Mark	Varner	2100 Ridge Ave Evanston, IL 60201	(847) 448 8050	mvarner@cityofevanston.org
22	J C	IDNR/OWR		Jim	Casey		(312) 793-5947	James.Casey@illinois.gov
23	MK	CCHD	HIGHWAY ENGR.	MARY	KILDAY	69 W. WASHINGTON ST. SITE: 2100 CHICAGO, IL 60602	312-603-1708	mary.kilday@cookcounty.il.gov
24	GNH	Illinois State Water Survey	Senior Hydraulic Engineer	Glenn	Heistand	2204 Griffith Dr. Champaign, IL 61820	217-244-8856	heistand@illinois.edu
25		NU Risk Mgmt.	MGR. SAFETY & LOSS	MARK	MITCHELL	2020 RIDGE AVE EVANSTON	847 491 4536	i-mitchell2@NORTHWESTERN.EDU
26	MR	Evanston	Plan Review	Michael	Rons	909 Lake St. Evanston, IL 60201	(847) 866-5929	mrons@cityofevanston.org
27		Lake County SMC	Regulatory Engineering Supervisor	Joanna	Colletti	500 W. Winchester Rd Libertyville IL 60048	847 377 7701	jcolletti@lakecountyil.gov
28	JT	City of Waukegan/ Baxter & Woodman	Interim City Engineer	John	~~Tierney~~ Tierney	100N. Martin Luther King, Jr. Ave Waukegan, IL 60085	847-625-6858	John.Tierney@ci.waukegan.il.us
29		Lake County Forest Preserve	Natural Resource Manager	Jim	Anderson	1899 W. Winchester Libertyville IL 60048	847.968.3282	janderson@lcfpd.org
30		City of North Chicago	Public Works Dir/ City Engr	Josh	Wheeler	1850 Lewis Ave N. Chicago, IL 60064	8475968691	joswheeler@northchicago.org

Meeting schedule: Thursday, August 23, 2012 9:00 – 11:00 am (CT)
Meeting Location: Northwestern University, Evanston, IL
Discovery Area: Coastal communities in Lake and Cook Counties, IL
Attendees: 28 people attended the Lake Michigan Discovery Meeting. Please see attached sign-in sheet for a complete list of attendees

FACILITATORS

FEMA
Frank Shockey
Tom Smith
Suzanne Vermeer

STARR Contractor
Jaspreet Randhawa
Scott Banjavcic
Brian Caufield

MEETING AGENDA:

1. **Why are we here? (15 minutes)**
   - Great Lakes Coastal Flood Study Overview and Schedule
   - Discovery Process and Outcomes

2. **Coastal mapping and flood risk topics to be aware of (25 minutes)**

3. **How does this apply to my community? (10 minutes)**

4. **Interactive Session A (25 minutes)**
   - View and Discuss Local Coastal Areas of Concern Using the Discovery Map and Community Risk MAP Questionnaire

5. **Hazard mitigation opportunities and grant funding (10 minutes)**

6. **Interactive Session B (25 minutes)**
   - Discuss Mitigation Action Opportunities
     Introduce the Mitigation Action Form and Mitigation Action Tracker

7. **Wrap Up (10 minutes)**
   - Review of action items and next steps

Optional Interactive Stations (30 minutes - 1hr following meeting)

- *Draft Transect Map Station: Talk to technical staff about draft transects and view draft transects in GIS*
- *Mitigation Resources, Strategies, and Actions Station: Talk with FEMA and State staff about areas of concern and potential mitigation actions to help reduce risk. Fill out Mitigation Action Form.*

INTERACTIVE DISCUSSION:

- Fire Chief Shaun Johnson introduced himself and gave participants his email address sj@northwestern.edu just in case anyone would get a parking ticket that needed to be handled.
- *Question:* Could you explain the length of transects and where they are going to stop? *Answer:* The transect length is based on rough LIDAR and aerial imagery. The length will be adjusted as the analysis is done based on the modeled wave heights. Frank explained that shorter transects usually signal a larger slope or bluff area.
- *Question:* Will you consider riverine impacts in the study? *Answer:* This study is focused on coastal areas. Generally, flooding on riverine areas and the lakes are statistically independent events and have little impact on each other.
- *Question:* How will you tie in the coastal study into existing riverine BFEs? *Answer:* The coastal study will extend upstream in rivers until it matches the effective riverine BFE at which point the coastal impacts would be considered minimal.
- *Question:* Will the study consider sediment transport that blocks off river mouths and causes potential riverine issues. *Answer:* Modeling the interaction between coastal and riverine sediment transport is beyond the scope of this study.
- *Question:* How long can we provide data to be considered in the study? *Answer:* The discovery report review period is expected to end in November and would appreciate comments or data by November end. However, engineering analysis will start after LIDAR has been collected, and any data collected before then can be useful.

FEATURES NOTED ON MAPS:

- City of Evanston noted two areas of concern on Northwestern University's campus (between transects 32 and 31) and along Sheridan Road at the very south end of the county (between Transects 901 and 30) that have experienced significant erosion due to wave action.
- Abbot Labs in North Chicago (Transect 56 and 57) may need additional wave protection, and the nearby water treatment plant is investigating a potential expansion.
- In Zion, IL, the decommissioned nuclear power plant (Transect 61) may not need a transect because it is in the process of being disassembled.
- Lake County Stormwater Management Commission identified a Harbor of Refuge area of development as part of Waukegan Harbor.
- In the City of Highland Park an area of eroding bluffs is a potential area of concern (Transects 46-47). Frank Veraldi should be contacted about this area of concern.
- Wilmette identified their water plan as a major city asset, and asked that a transect adequately cover that structure.

MITIGATION ACTIONS:

- City of Evanston noted two areas of concern on Northwestern University's campus (between transects 32 and 31) and along Sheridan Road at the very south end of the county (between Transects 901 and 30) that have experienced significant erosion due to wave action. Erosion protection structures or strategies need to be identified.
- City of Evanston Water Utility has identified an area east of water plant that needs to be returned to natural dune habitat. Funding from IDNR fell through for this project, which is designed to mitigate erosion issues.
- City of Evanston has also identified a need for protection along Lake Shore Drive where wave action (up to 15 feet) caused road closures last year.
- Abbot Labs in North Chicago (Transect 56 and 57) may need additional wave protection.
- In the City of Highland Park an area of eroding bluffs is a potential area of concern (Transects 46-47). Frank Veraldi should be contacted about this area of concern.

FEMA

Lake Michigan Discovery

Cook County, IL
Lake County, IL

August 23, 2012
0900 to 1200

Northwestern University

RiskMAP
Increasing Resilience Together

Great Lakes Coastal Flood Study
greatlakescoast.org

Introductions

Who's here?

- State Representatives
  - IDNR - NFIP
  - IDNR - SHMO
- Risk MAP Project Team
  - FEMA
  - STARR
- Local Stakeholders
  - CEOs
  - Floodplain Administrators
  - Planners
  - Engineers
  - Emergency Managers
  - Community Leaders
  - Regional Planning Agencies
  - Coastal Organizations

Status of Illinois Lake Michigan Counties

Counties	Countywide Status / Other Projects Underway?
Cook	Effective maps dated 8/19/2008.
	RM-FY09-IL-Cook County 2009 Updates-O-PMR (on hold, projected to go prelim on 12/14/2012)
	RM-FY10-IL-North Branch Chicago River Watershed-Cook County-O-PMR (on hold)
	RM-FY10-IL-Des Plaines Watershed, Upper Salt Creek PMR, Cook County-O-PMR (on hold)
Lake	Preliminary maps issued on 3/31/2011, with a revised preliminary projected for 7/23/2012.
	RM-FY09-IL-Lake County-O-PMR (on hold, projected to go prelim on 12/28/2012)
	RM-FY10-IL-Des Plaines Watershed, Bull Creek PMR, Lake County-O-PMR (on hold, projected to go prelim on 11/1/2013)

Discovery Meeting Agenda

- Why are we here?
  - Risk MAP Program, Great Lakes Study, and Discovery
- Coastal mapping and flood risk topics
- How does this apply to my community?
  - NFIP compliance, local impacts of coastal study, hazard mitigation, and grant funding
- Interactive Sessions
  - View and Discuss Local Coastal Areas of Concern Using the Discovery Map and Community Risk MAP Questionnaire
  - Discuss Mitigation Action Opportunities and Introduce the Mitigation Action Form/SHARPP
- Wrap Up
- Optional Interactive Stations

Risk Mapping, Assessment and Planning
Risk MAP

Through collaboration with State, Local, and Tribal entities, Risk MAP aims to deliver quality data that increases public awareness and leads to action that reduces risk to life and property

Great Lakes Coastal Flood Study

U.S. Army Corps of Engineers, Detroit District

RiskMAP
Increasing Resilience Together

Great Lakes Coastal Flood Study

Lake Michigan Discovery Report Appendix I - Cook and Lake County

greatlakescoast.org

Great Lakes Coastal Flood Study
Overview

- Latest models, data, and technology
- Deliver updated flood maps and flood risk datasets
- Equip Federal Agencies, eight States and hundreds of coastal communities with data and planning tools to facilitate flood risk actions to enhance resiliency along the Great Lakes
- Partners Involved:
  - FEMA
  - USACE
  - ERDC
  - ASFPM
  - States
  - FEMA Contractors

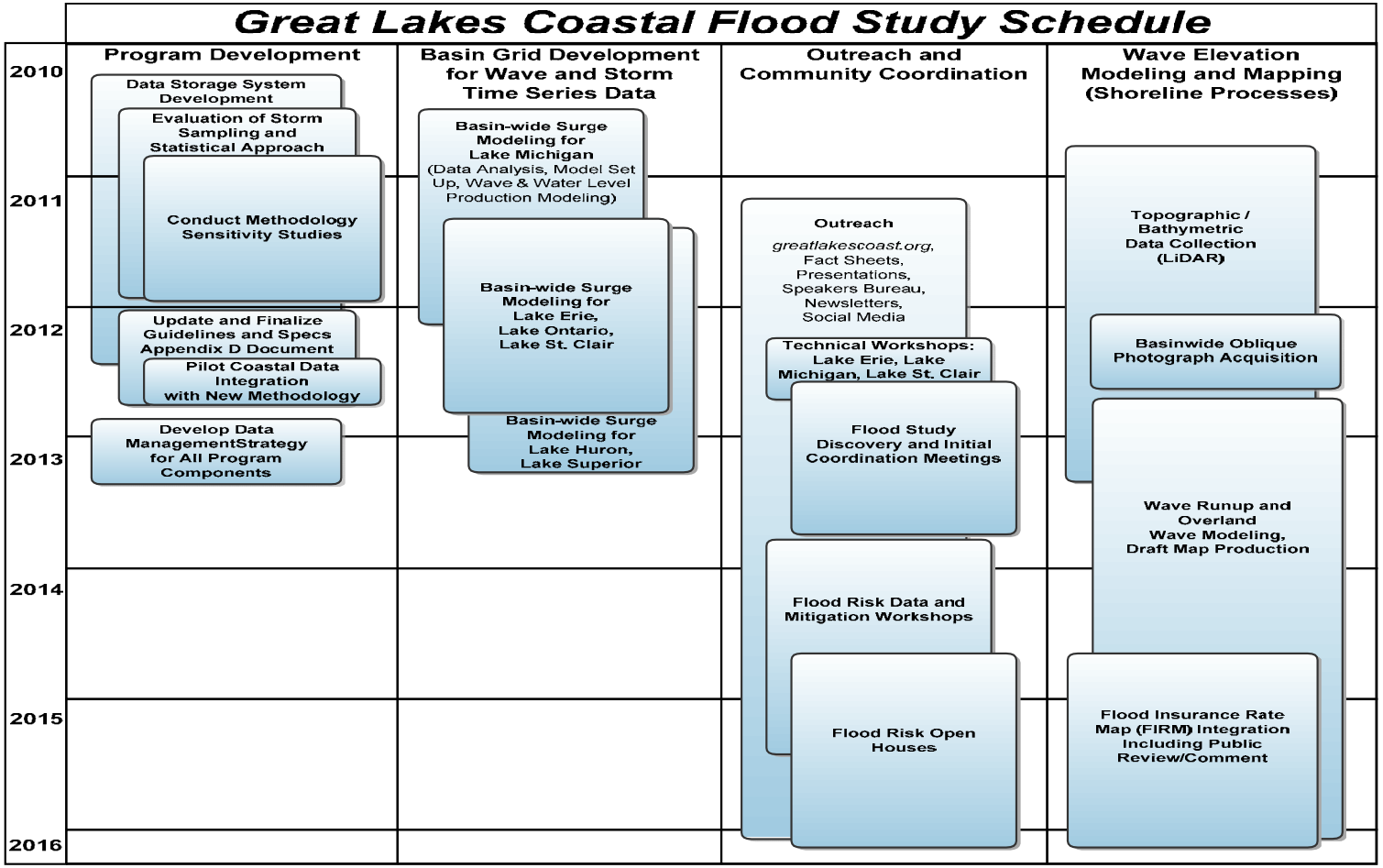
Lake Michigan Discovery

- 34 counties in total
  - 4 counties in UP Michigan
  - 11 counties in Wisconsin
  - 2 counties in Illinois
  - 3 counties in Indiana
  - 14 counties in lower Michigan
- 226 coastal communities

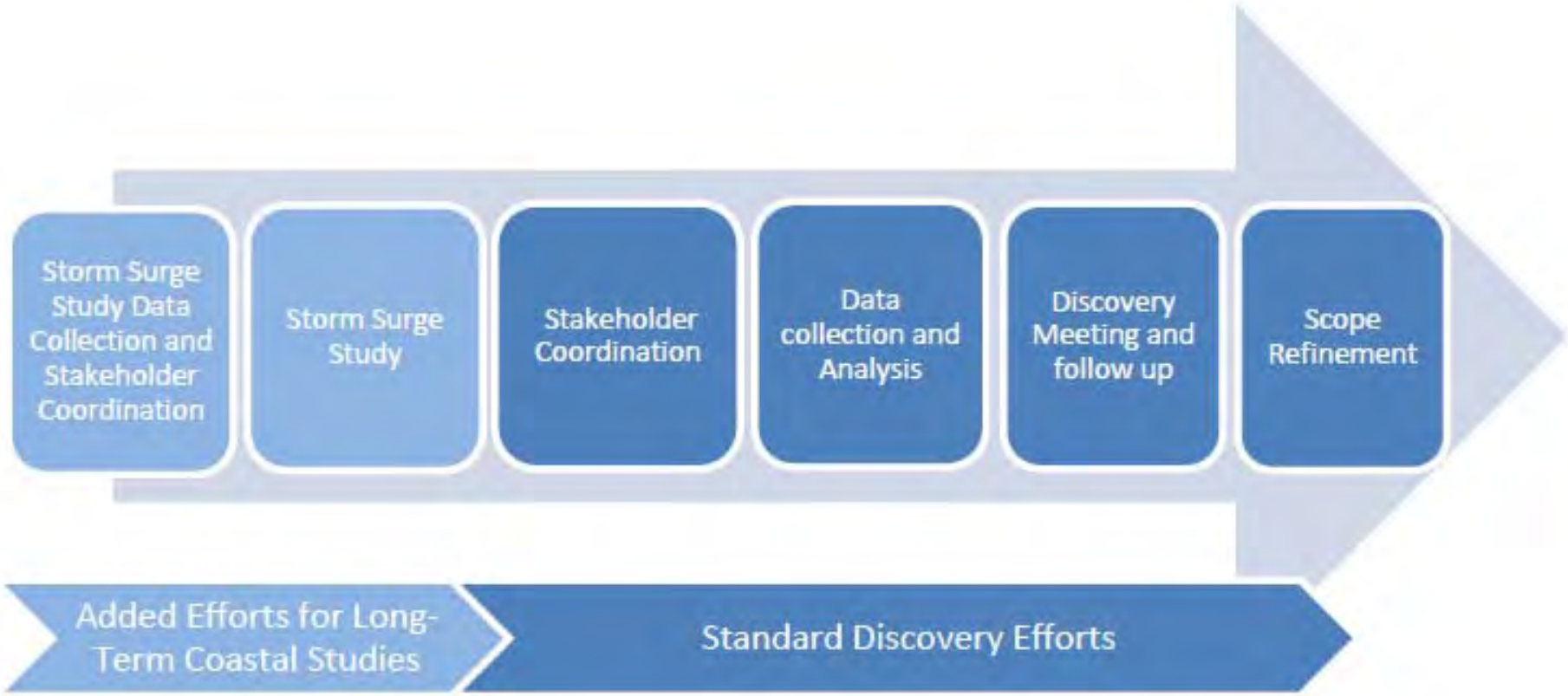
Discovery Meeting Objectives

- Continue and expand upon stakeholder engagement
- Discuss data inputs from Federal, state and local
- Identify local coastal flood hazard needs and areas of concern
- Identify products and datasets that best advance coastal mitigation action
- NFIP regulatory updates
- Discovery schedule and deliverables

Stakeholder Engagement



Discovery Schedule Overview



Schedule of Activities

- Identify Draft Transect Locations – Completed
- Research available data – Completed
- Information Exchange with Community Stakeholders – Completed
- Prepare draft Discovery Maps and Reports – August 2012
- Establish inventory of coastal structures based on oblique imagery –October 2012
- Facilitate Discovery Meetings – August/September 2012
- Final Discovery Report and Maps – November 2012
- Create library of digital data – November 2012

Great Lakes Coastal Flood Study
Discovery Products

- **Final Discovery Report**
  - Single, comprehensive report for all of Lake Michigan, with appendices for each Discovery meeting
  - Includes pre-discovery data, meeting agenda, sign-in sheets, discussion topics, decisions made, etc.
- **Final Discovery Maps**
  - Including feedback from participants
  - Visual representation of meeting outcomes
  - Delivered in digital format

Discovery Outcomes

- **Explain the Project**
  - Regulatory and non-regulatory products/datasets
  - Analysis, concepts, timelines
- **Encourage Community Participation**
  - Transect Locations
  - Areas of concern and need
  - Data to improve upon products and datasets
- **Introduce Mitigation Action**
  - Mitigation Action Form
  - Action Tracker
  - Mitigation strategies for coastal flood and erosion

Data Collection in progress

- New high quality USACE Topographic – Light Detection and Ranging (LiDAR) and Bathymetry Data
- Base data – boundaries, streams, census blocks, etc.
- Average Annualized Loss data
- Shoreline classification Dataset
- Dams
- Federal and State disaster information
- Repetitive loss data
- Hazard Mitigation plans
- Hazard Mitigation Grants Program (HMGP) projects
- Stream, wave, and water level gage locations
- Pre-Disaster Mitigation Program projects
- Draft Transects

Data Gaps

- Building footprints
- Critically eroded beach areas
- Coastal construction control line
- Critical Facilities (in GIS format)
- High water marks
- Areas of recent or planned development
- Areas of high growth
- Recent land changes due to development, erosion, etc.
- Known flooding issues not represented on effective FIRMs or listed in CNMS

FEMA

Coastal Mapping and Flood Risk Topics

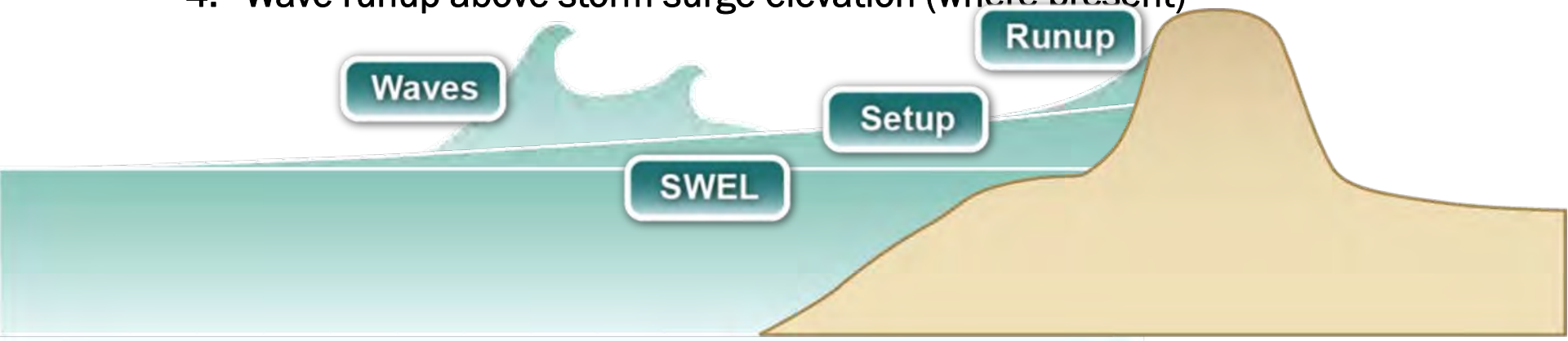
- Draft Transects
- Coastal Guidance Updates
- VE Zone Mapping and LiMWA
- Coastal Flood Risk Products

RiskMAP
Increasing Resilience Together

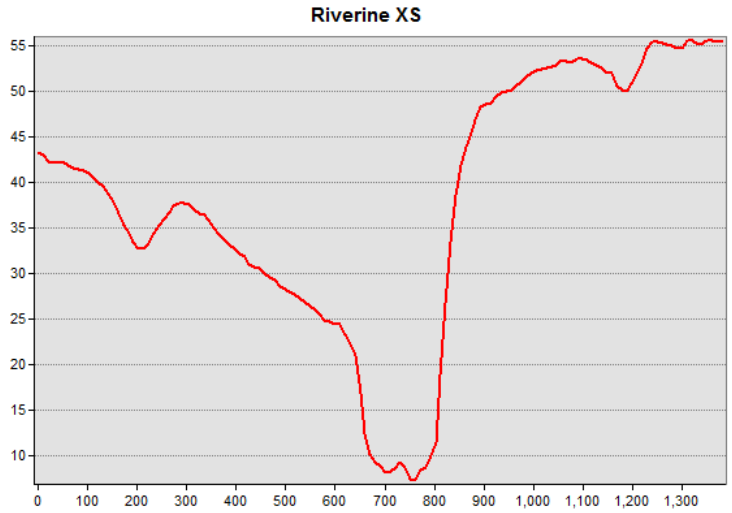
Basic Elements of a Coastal Hazard Analysis

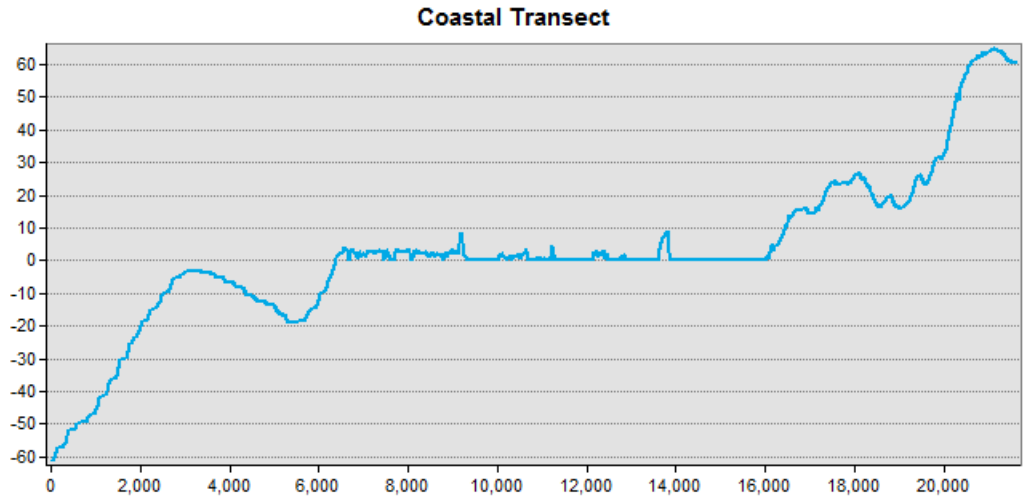
Base Flood Elevation on FIRM includes 4 components:

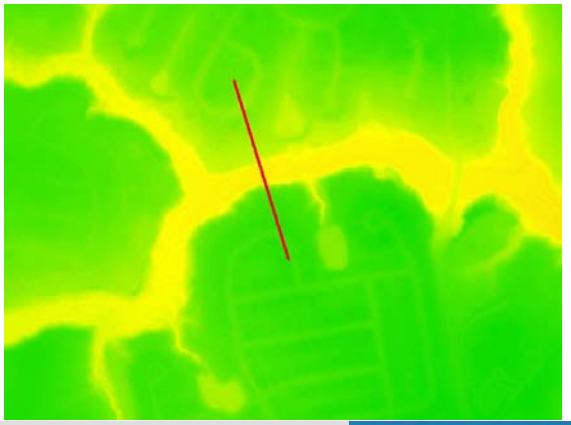
1. Storm surge stillwater elevation (SWEL) – determined from storm surge model
2. Amount of wave setup
3. Wave height above storm surge (stillwater) elevation
4. Wave runup above storm surge elevation (where present)

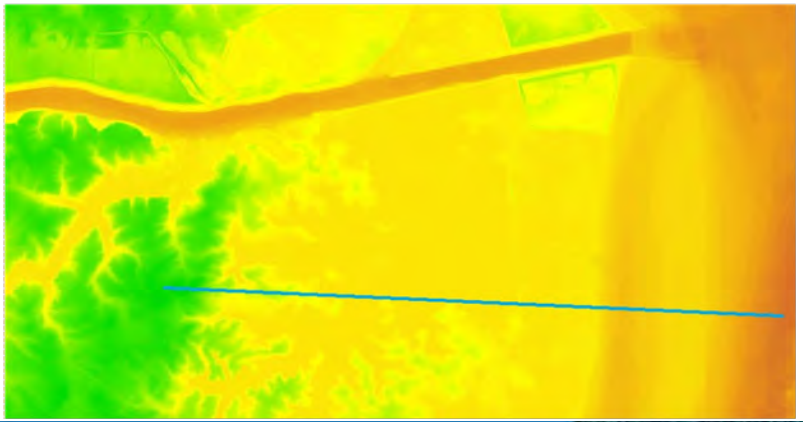


Riverine XS vs Coastal Transect



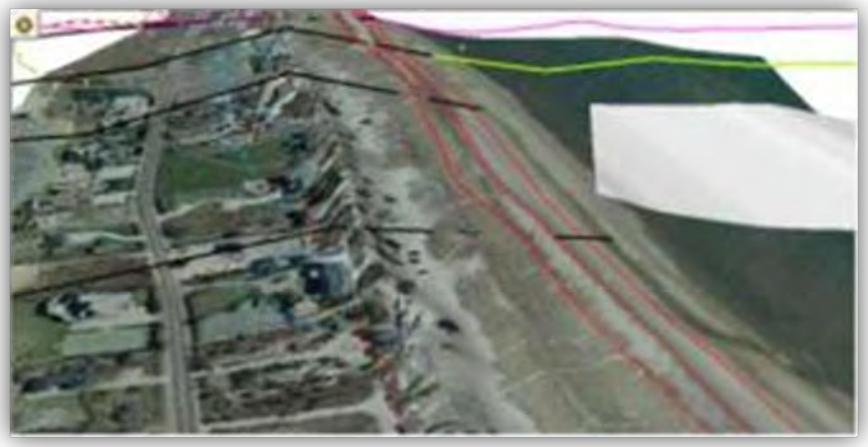






Transect Placement

- Transects are placed to define representative profiles for a shoreline reach
- Transect spacing depends on upland development
  - Developed areas – As dense as 1,000 ft
  - Rural areas – Spacing can be 1-2 miles
- Transects are:
  - Profiles along which flooding analysis is performed
  - Used to transform offshore conditions to shoreline
  - Use to define coastal flood risks inland of shoreline



Draft Transect Layout Cook County

- 44 transects
- 51 miles of shoreline

Draft Transect Layout
Cook County

- 44 transects
- 51 miles of shoreline

Draft Transect Layout Cook County

- 44 transects
- 51 miles of shoreline

Draft Transect Layout Cook County

- 44 transects
- 51 miles of shoreline

Draft Transect Layout Cook County

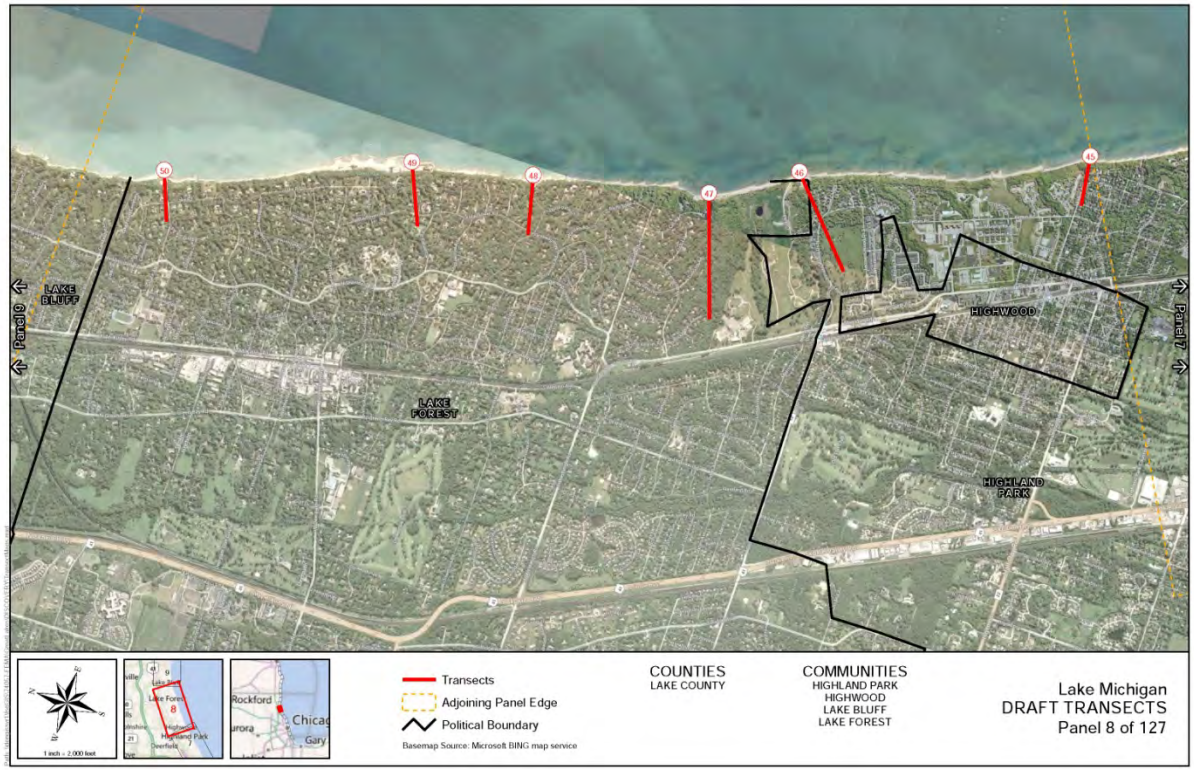
- 44 transects
- 51 miles of shoreline

Draft Transect Layout Cook/Lake County

- 44 transects
- 51 miles of shoreline

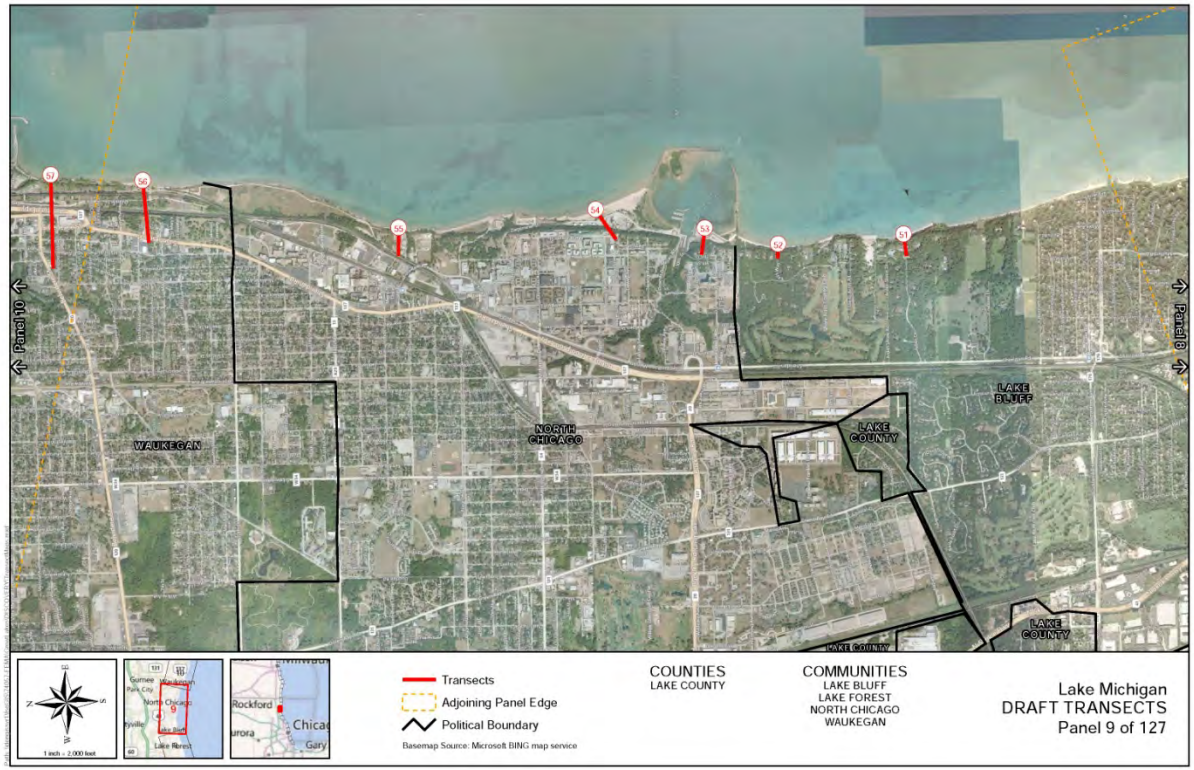
Draft Transect Layout Lake County

- 23 transects
- 29 miles of shoreline



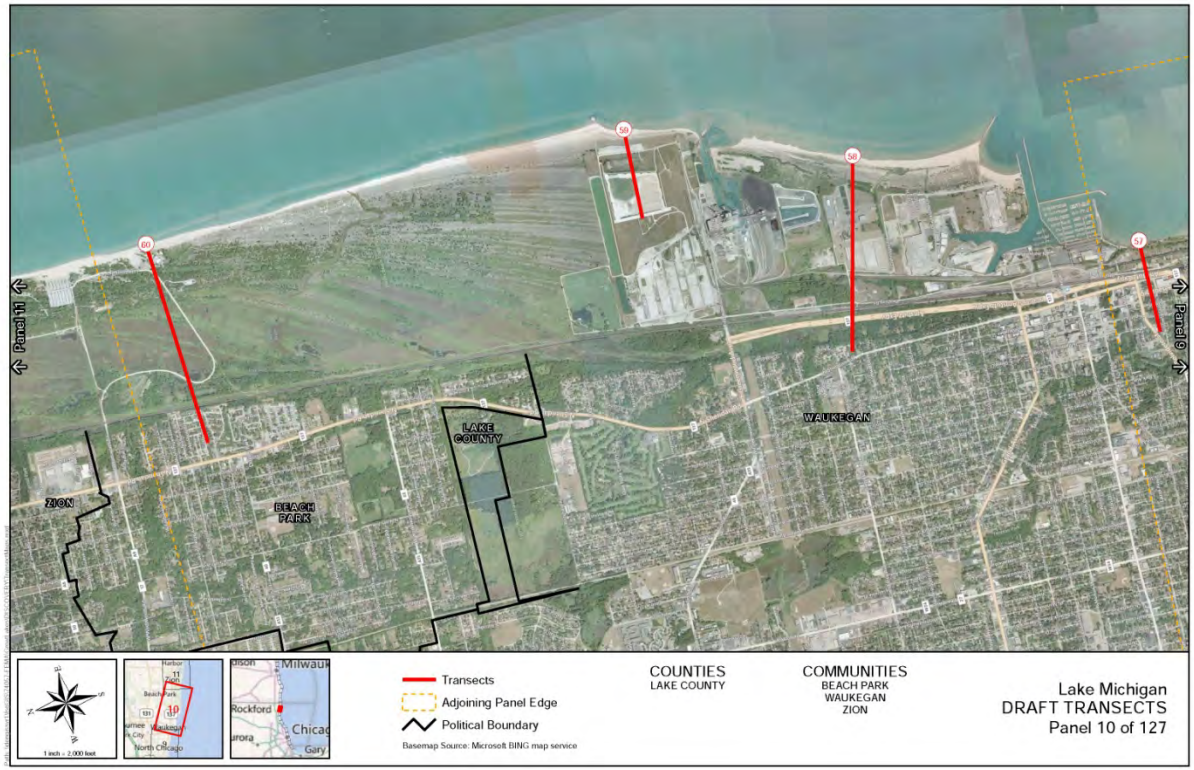
Draft Transect Layout
Lake County

- 23 transects
- 29 miles of shoreline



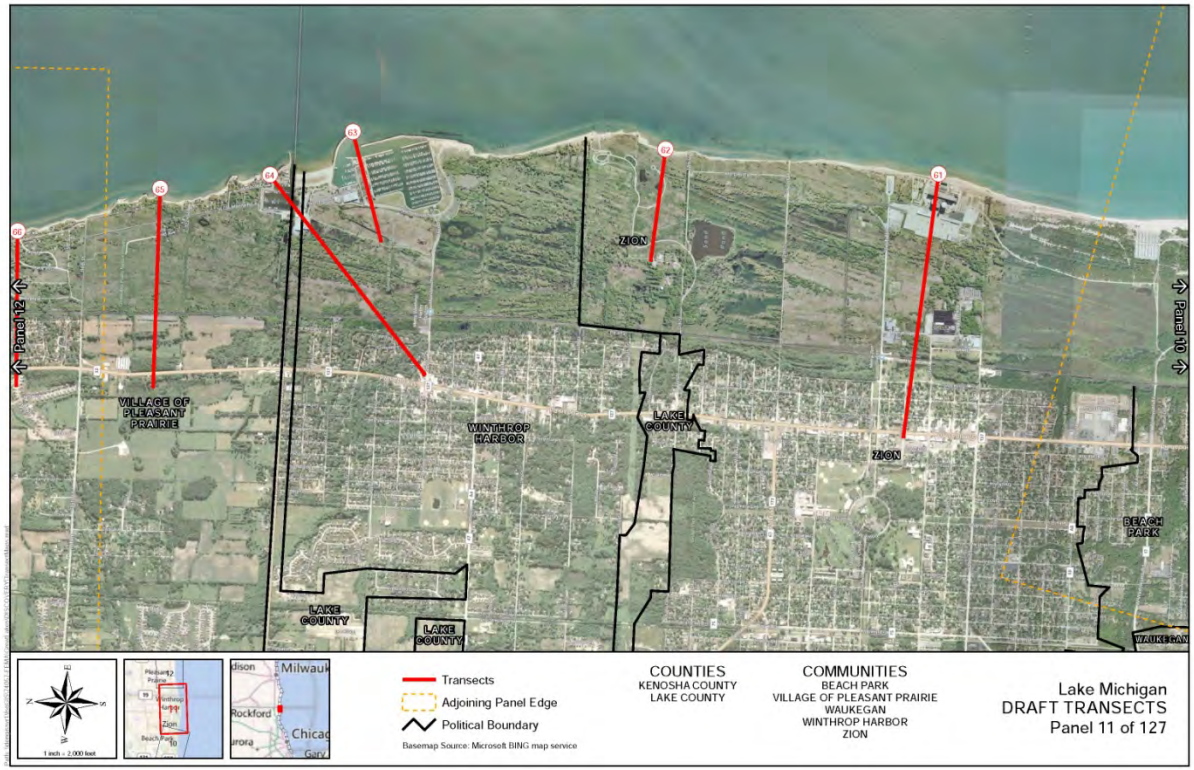
Draft Transect Layout Lake County

- 23 transects
- 29 miles of shoreline



Draft Transect Layout Lake County

- 23 transects
- 29 miles of shoreline



Coastal Flood Hazard Zones

- Hazard Zones
  - Zone VE – Areas expected to be affected by high velocity wave impact in 100-year event (wave heights or runup depth at or greater than 3 feet)
    - Base Flood Elevation established
  - Zone AE – Areas expected to be flooded by inundation in 100-year event
    - Base Flood Elevation established (wave heights and runup depth less than 3 feet)
  - Zone X – Areas not expected to be flooded in 100-year event
    - Shaded X – Areas expected to be flooded in 500-year event
    - Base Flood Elevations not established
- Non-Regulatory
  - LiMWA – Areas subject to wave heights of at least 1.5 feet
- Gutters
  - Internal zone breaks where Base Flood Elevation changes
  - VE/AE Gutter - Location where risk of damage due to wave action diminishes

VE Zones in the Great Lakes

- **From the revised Appendix D.3:**
  - "VE zones may also be mapped where the engineering analysis indicates their presence"
  - "The typical study finding is a narrow VE zone, making its usefulness uncertain on maps at usual scales"
  - "Relatively small numbers of existing coastal buildings are likely to be affected by possible VE zone designations along some Great Lakes"
  - "Only with prior approval from the FEMA study representative should the VE zones be mapped"

How is LiMWA Defined?

- LiMWA is the line mapped to delineate the inland extent of wave heights of at least 1.5 feet
  - Wave heights as small as 1.5 feet can cause significant damage to structures
- LiMWA alerts people that are not in the high wave hazard zone (Zone VE) that they may still be affected by wave action in the Zone
- CRS benefit for communities requiring Zone VE construction standards in areas defined by LiMWA or areas subject to waves greater than 1.5 ft

Wave Action - Structural Risk

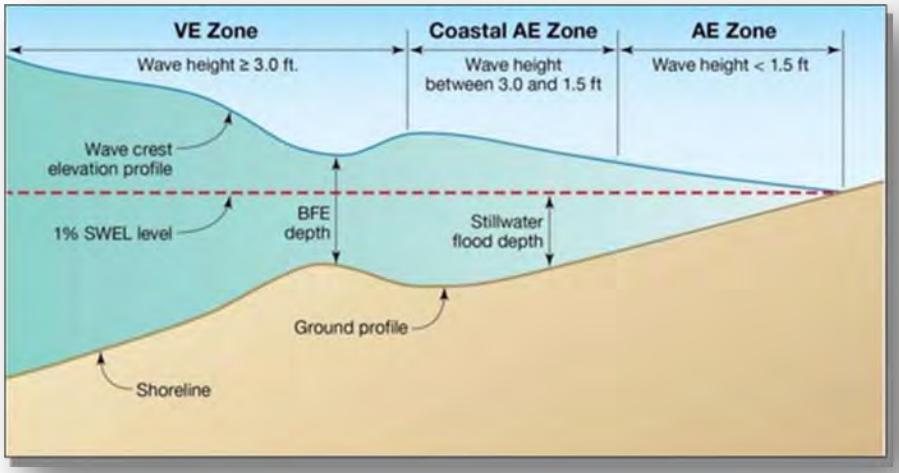
- US Army Corps of Engineers – 1973
  - Breaking wave height of 3 feet
  - “area subject to high velocity waters, including but not limited to hurricane wave wash”
- FEMA – 2000
  - Coastal Construction Manual
  - Additional post-storm damage assessments identified 1.5 wave also can knock a structure off a foundation

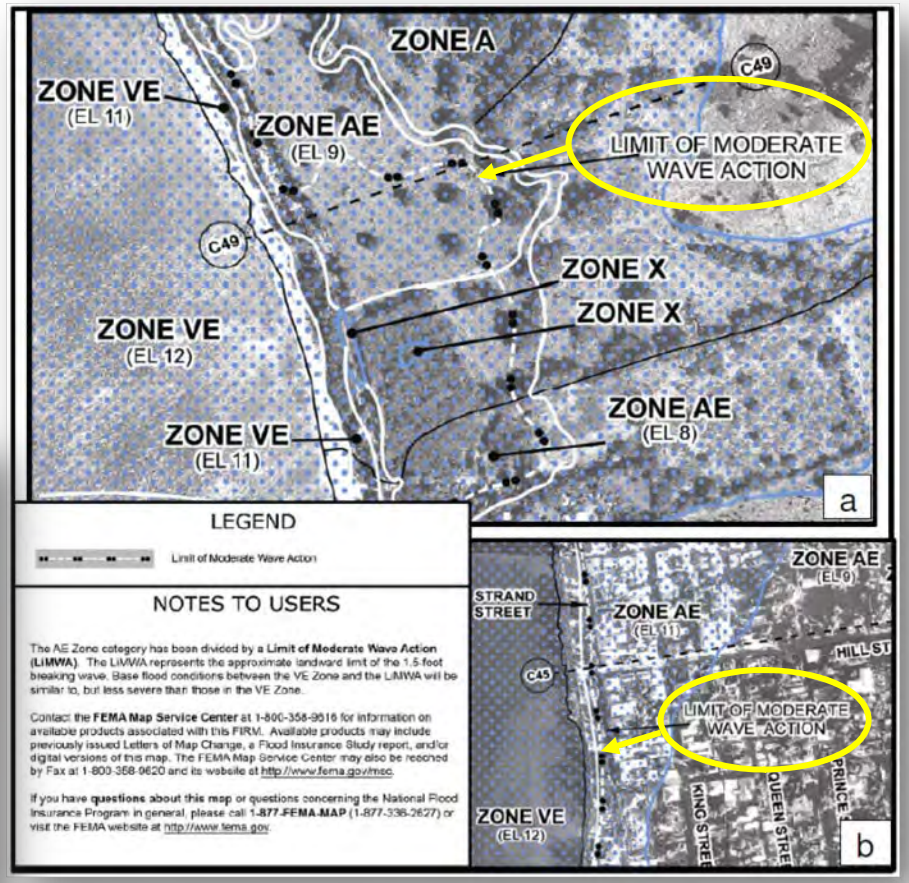
http://www.fema.gov/pdf/rebuild/mat/coastal_a_zones.pdf

Limit of Moderate Wave Action (LiMWA)

FEMA Procedure Memorandum No. 50, 2008

- Not a regulatory requirement
- No Federal Insurance requirements tied to LiMWA





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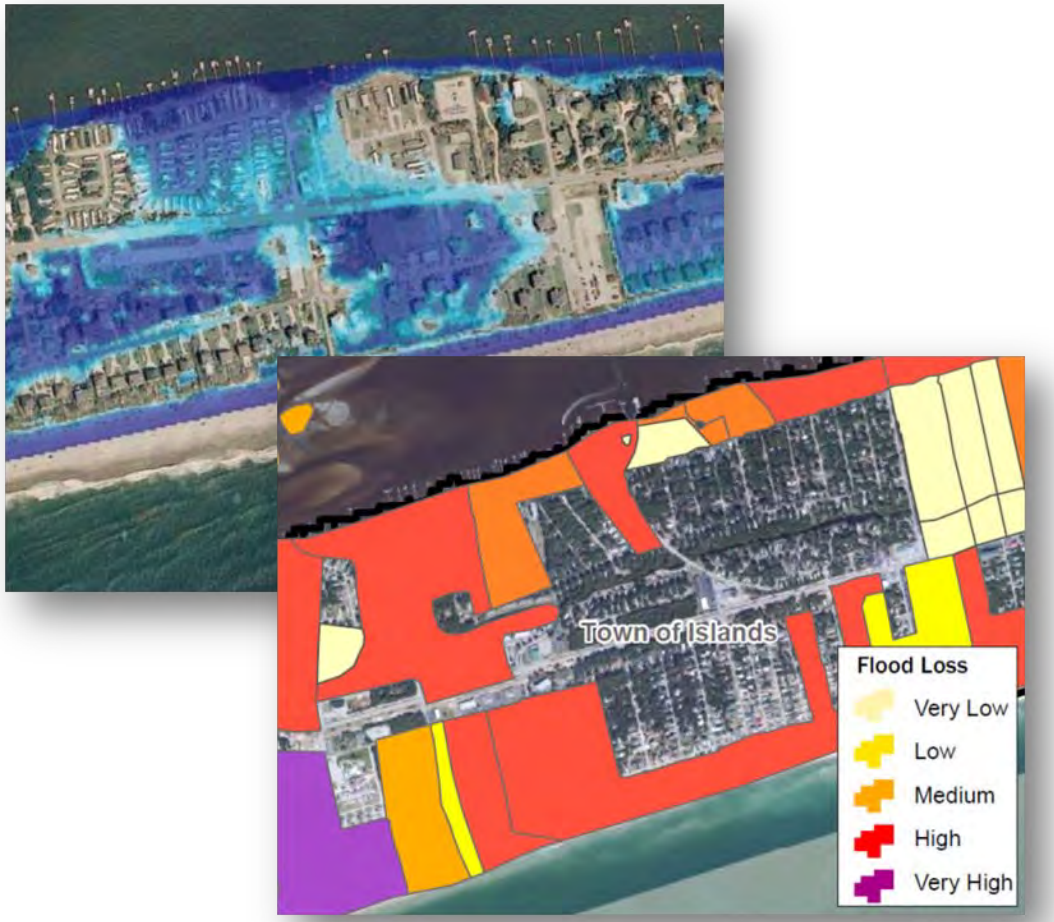
Coastal Flood Risk Products

- Coastal Depth Grids and HAZUS
- Changes Since Last FIRM
- Coastal Non-Regulatory Products

Standard Flood Risk Products

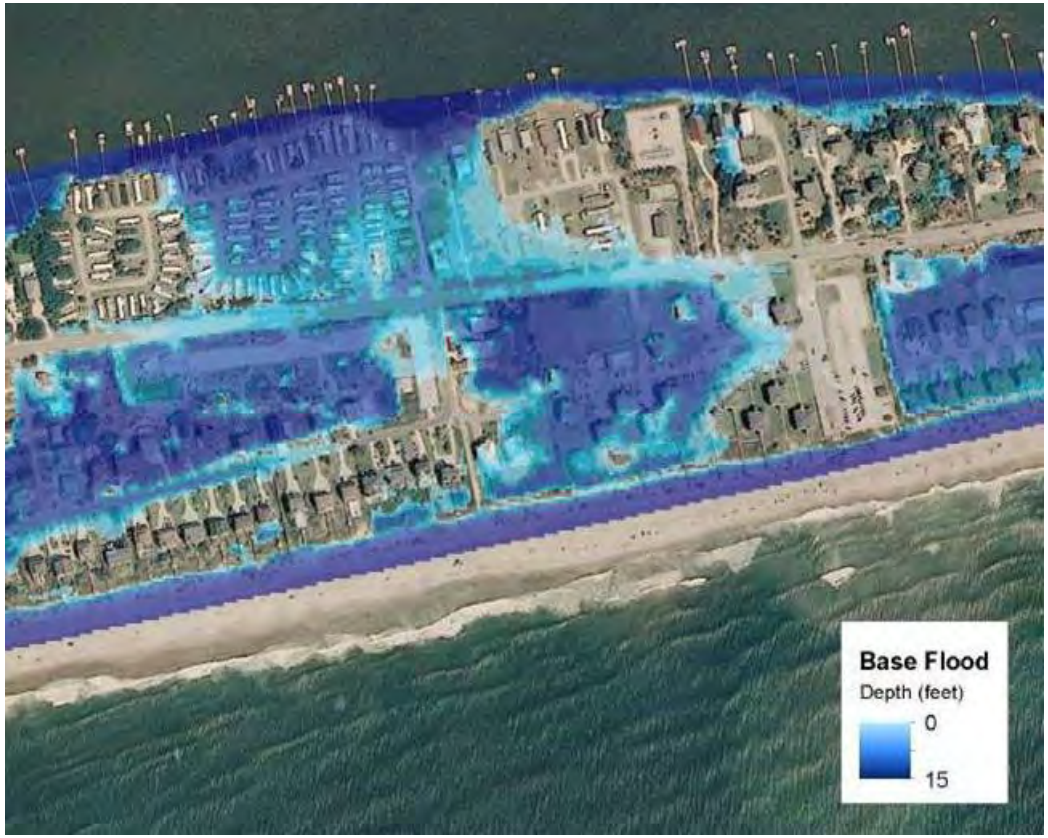
- Coastal Depth Grids
- Flood Risk Assessment (HAZUS)

HAZUS MH
EARTHQUAKE • WIND • FLOOD



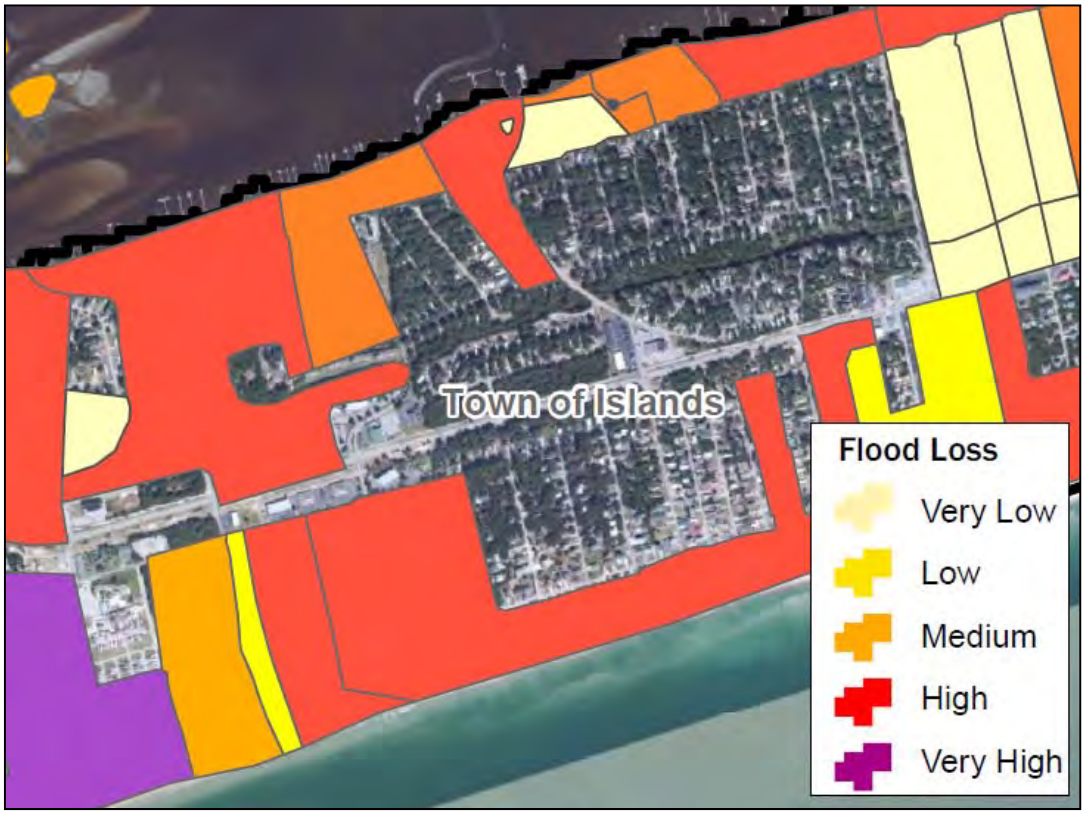
Coastal Depth Grid

- Should reflect total depth (i.e. stillwater and waves) – typically only produced for the 1% annual chance flood
- Created using the regulatory mapping and associated zone breaks as input

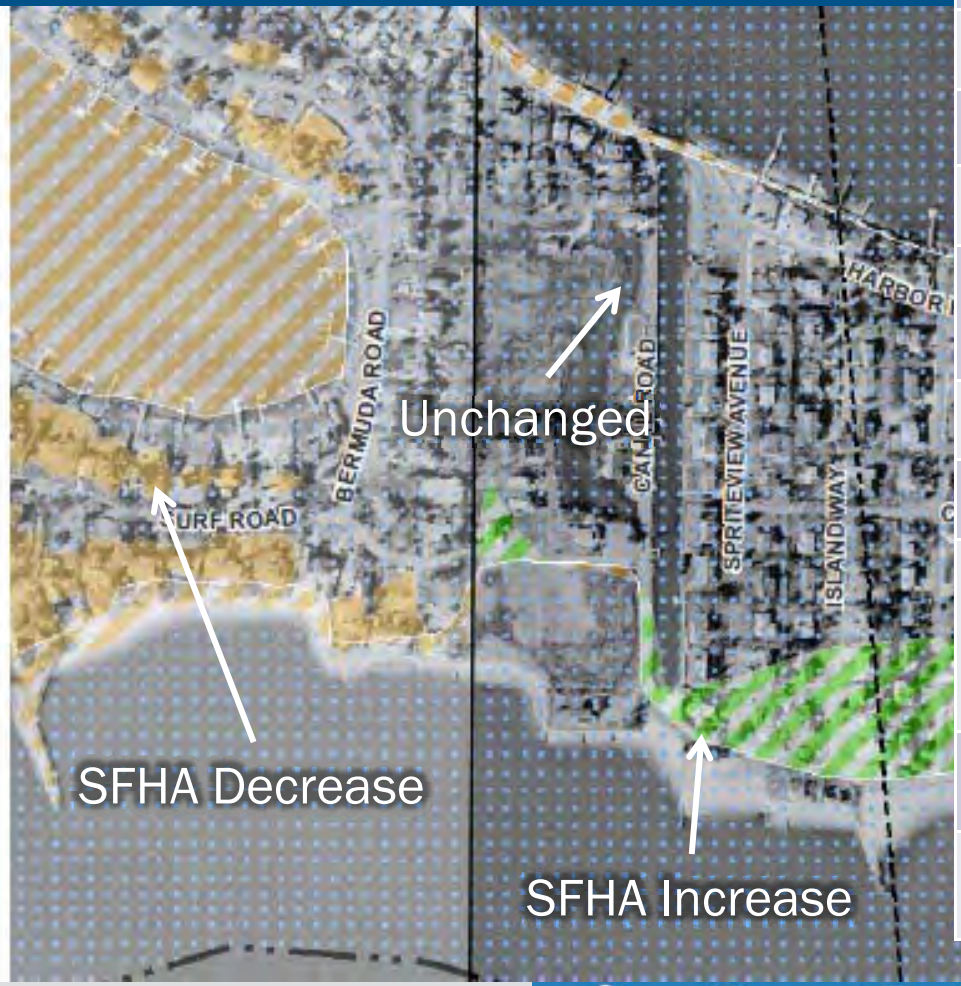


Coastal Flood Risk Assessments

- Similar to Flood Risk Assessments for riverine, but using the coastal depth grids as input for the refined analysis
- Hazus analysis and data can support adoption of higher regulatory standards for structures in high loss areas
- Provides justification to fund mitigation actions



Changes Since Last FIRM



Data Fields Include	Example Data Values
Old Study Date	e.g. 1985
Old Model Type(s)	e.g. HEC-1 / HEC-2
Old Zone Type	e.g. Zone A
Old Topography	e.g. USGS 10-ft
New Study Info/Methods	Dates, Models, etc.
New Study Zone	e.g. Zone AE
New Topography	e.g. LiDAR 2-ft
New Study Engineering Factors / Changes	e.g. new structures, gages, topo, landuse, etc.
Estimated Structures	e.g. 9
Estimated Population	e.g. 27

Coastal Non-Regulatory Products in Development

Erosion

Red Lantern Restaurant, Lake Michigan, IN

Lake Levels

Lake Michigan Shoreline
Reference

Shoreline Feature Dataset

Upper Peninsula Shoreline
Reference

Shoreline Features Database

Shoreline Material
Sand
Cohesive
Cobble
Diamicton*
Shingle
Bedrock
Artificial

Primary Land Use
High Density Residential
Moderate Density Residential
Low Density Residential
Commercial/Industrial
Park Land
Farm Land
Forested

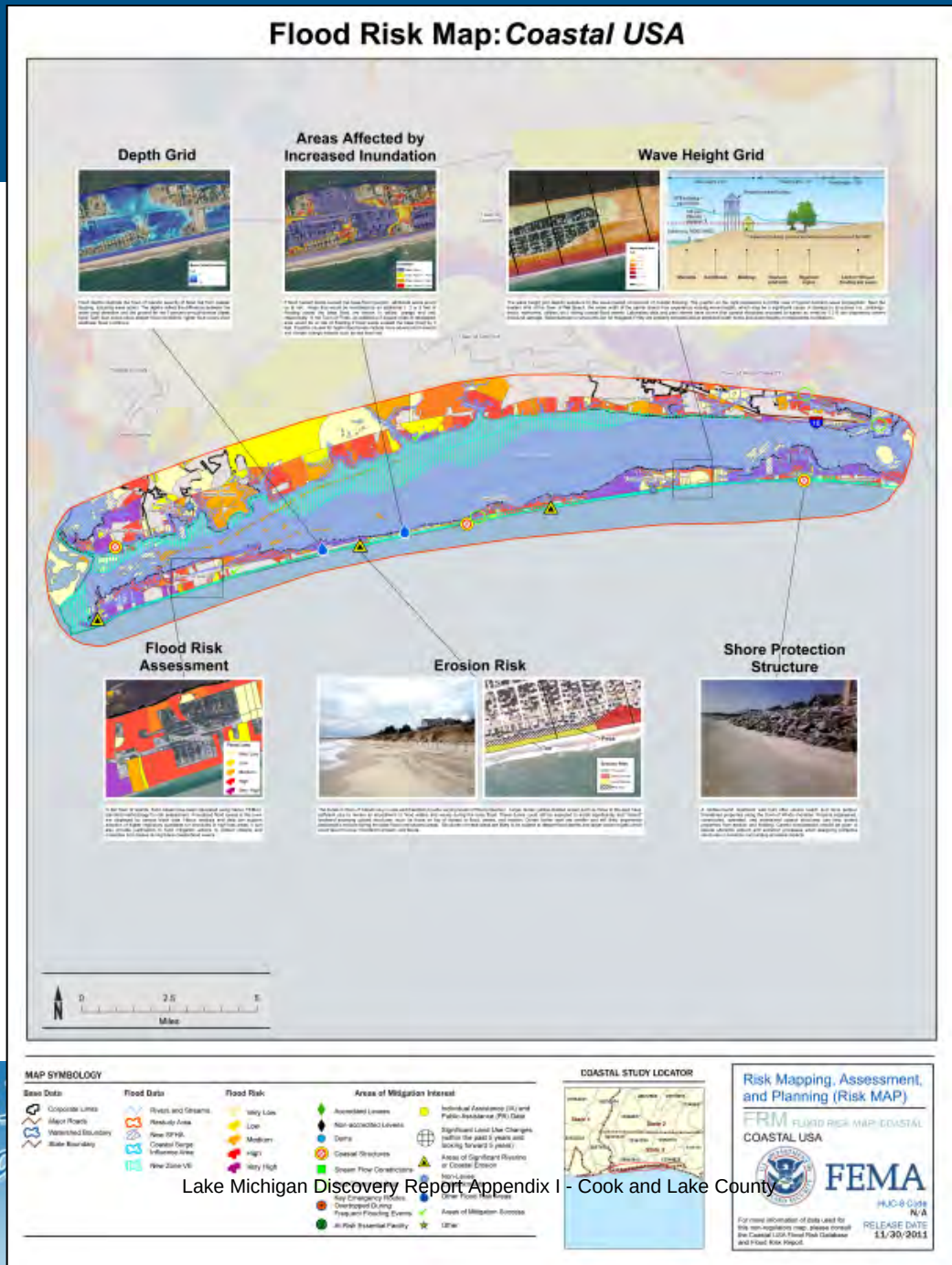
Primary Coast Type
High Dune, 10'+
Dune, 2' - 10'
High Bluff, 10'+
Bluff, 2' - 10'
Coastal Wetland
Flat Coast

Primary Vegetation
None
High Density Shrubs/Trees
Moderate Density Shrubs/Trees
Low Density Shrubs/Trees
Manicured Lawn
Native Vegetation

- Contains primary and secondary Land Use tables – same for coast type and vegetation
- Current project collects data at one-mile spacing, for scoping and cost
- Current project does not include field-based reconnaissance or sediment/subsurface soils collection

Coastal FRM

- Similar to riverine map
- Highlights area where datasets were produced
- Use of callout boxes
- Should drive the conversation towards mitigation



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Coastal Updates to Flood Risk Report

- Explanations of coastal non-regulatory datasets and their use in risk communication and mitigation planning
- References to other publications and resources that provide information on coastal risks
- Captures and reports increases and decreases in Coastal High Hazard Areas (VE & V Zones) within the Changes Since Last FIRM tables in the FRR

Area of Study	Total Area (mi^2)	Increase (mi^2)	Decrease (mi^2)	Net Change (mi^2)
Within SFHA	*23.8*	*1.6*	*0.4*	*1.2*
Within Floodway	*1.4*	*0.2*	*0.0*	*0.2*
Within CHHA (VE or V Zone)	*7.8*	*0.9*	*0.5*	*0.4*

Non-Regulatory Product Usage and Action

- Risk MAP Products and Datasets help communities make good decisions to reduce flood risk:
  - Hazard Mitigation Planning
  - Floodplain Management and Community Rating System
  - Community Comprehensive or General Planning
  - Community Investment - Capital Improvement Planning
  - Public Outreach
  - Hazard Mitigation Assistance Grant Application Prioritization and Support
  - Other Non-FEMA Grants to Reduce Flood Risk
  - Response and Recovery Planning
- Mitigation Action Form

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How does this apply to my community?

- NFIP Compliance
- Local impacts of coastal study

National Flood Insurance Program

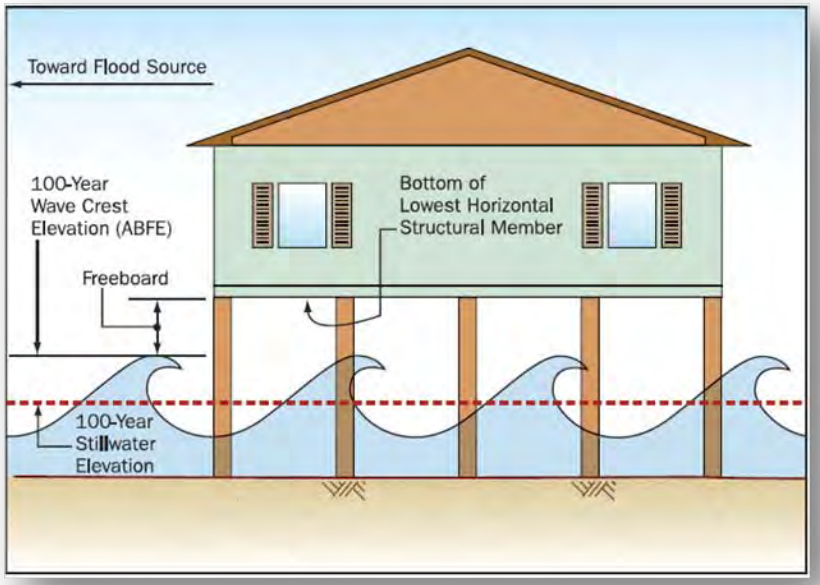
- Allows property owners to purchase flood insurance at reduced rates
- Community responsibilities
  - adopt and enforce compliant regulations
- FOCUS is in building the local floodplain management capability

V Zones for Lake Michigan?

- Lake Michigan communities currently do not have V/VE Zones. Majority of the communities have coastal A/AE zones.
- If costal AE and VE Zones are added on maps where they did not exist before, all affected communities must update regulations to include coastal requirements.
  - State will provide regulations assistance and technical support if/when coastal flood zones are added.

Coastal Zones and NFIP Compliance

- Must meet minimum NFIP and community coastal requirements
- NFIP design and construction requirements are more stringent in V zones due to wave, debris, and erosion hazards in V zones
- Recommendations for exceeding the minimum NFIP requirements (Coastal A Zones)
  - Can obtain CRS credits for Coastal A Zone Requirements
- Resources Available



Community Rating System (CRS)

- Flood insurance premium rates discounted to reward community actions that reduce flood losses, facilitate accurate insurance ratings, and promote the awareness of flood insurance
- Class rating system from 1 to 10
- Each Class improvement (500 point increments) results in additional 5% discount, up to 45% in SFHAs for Class 1 communities
- Uniform minimum credits give you points for activities on the state level (state laws) and make achieving a Class 9 relatively easy
- 18 creditable activities organized under four categories:

Public Information	Mapping and Regulations
Flood Damage Reduction	Flood Preparation

- http://training.fema.gov/EMIWeb/CRS/

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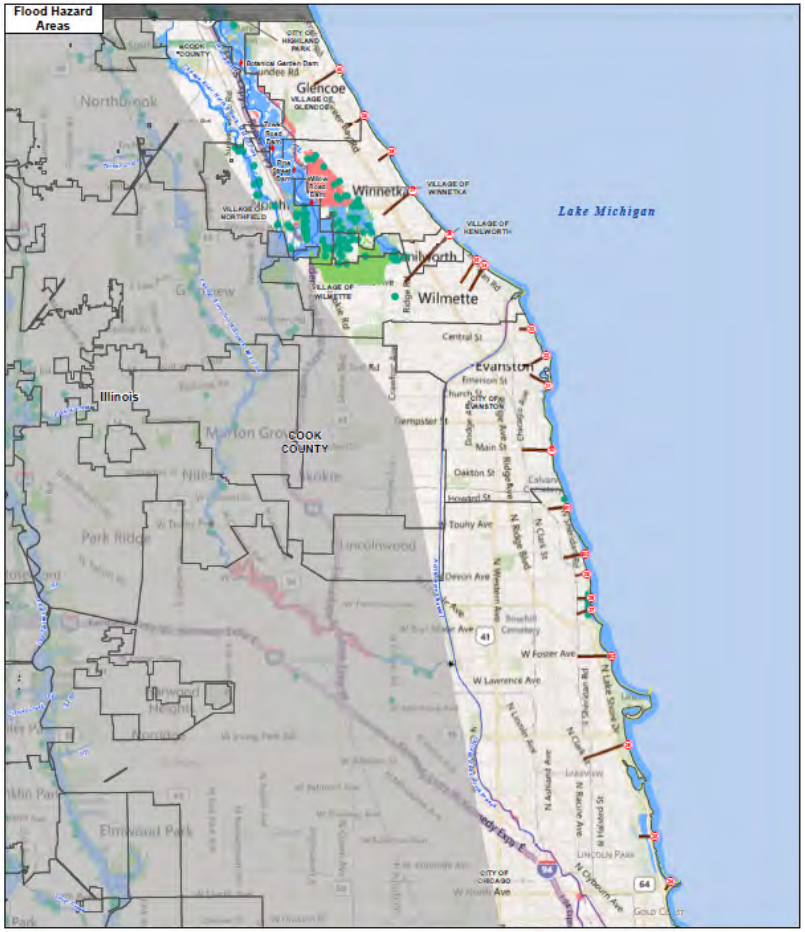
Interactive Session A

- View and Discuss Local Coastal Areas of Concern Using the Discovery Map

Cook & Lake County, IL
Discovery Map – Flood Hazard Areas



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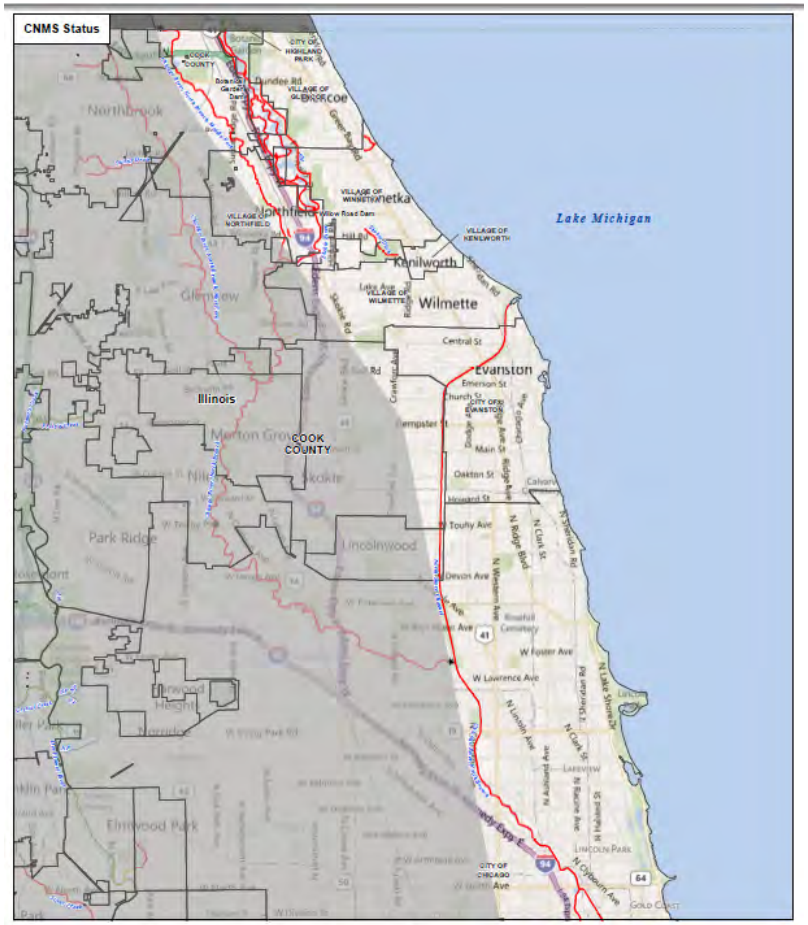
Cook & Lake County, IL
Discovery Map – CNMS Status



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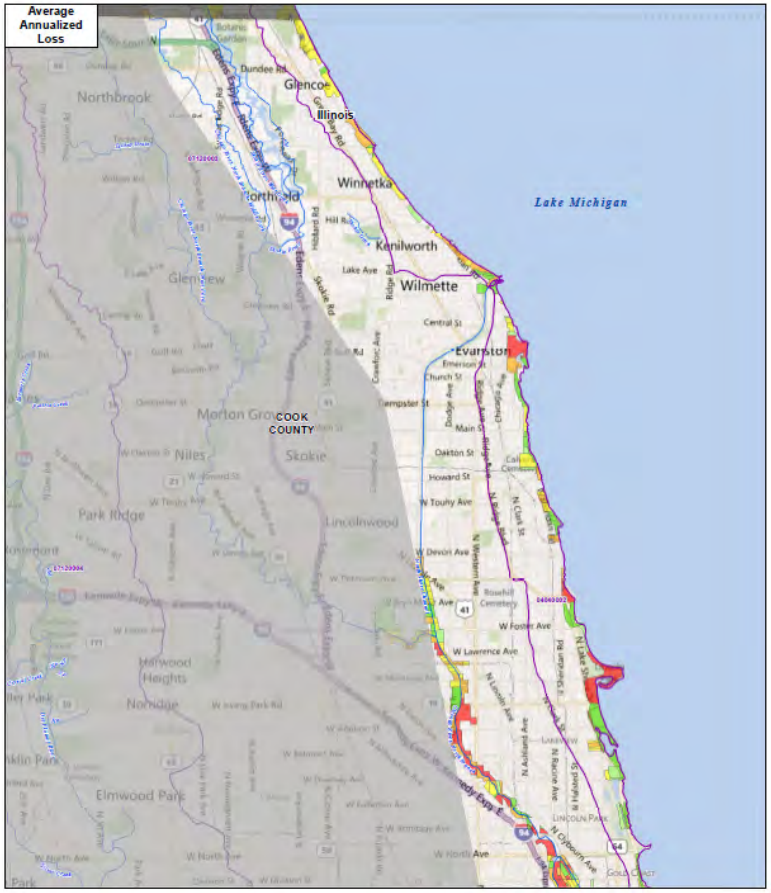
Cook & Lake County, IL
Discovery Map – AAL and CBRS



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Hazard Mitigation

- Opportunities
- Grant Funding

Local Hazard Mitigation Plans

Risk MAP
Risk MAP products and Datasets

Hazard Mitigation Plan
- Uses Risk Information
- Identifies Projects/Actions
- Integrated with Other Community Plans

Other Community Plans
- Comprehensive plans
- Land Use Plans
- Capital Improvement
- Stormwater
- Management Plans
- Emergency Operations

Mitigation Actions/Projects

Mitigation Actions

- Address specific existing assets (e.g., elevate critical facility, enlarge a culvert, acquisition of floodplain properties, floodproof floodproone properties)
- Address future risks (e.g., update building codes)
- Based on local capabilities
  - Build on current strengths, ongoing efforts (add-on to stormwater management regulations)
  - Coordinate with Federal programs (e.g., NFIP, CRS)

Example Mitigation Actions

STRUCTURAL /NON-STRUCTURAL PROJECTS

Detention
Drainage
Acquisition
Elevation
Retrofits

PLANNING MECHANISMS

Zoning
Building Codes
Ordinances
Open Space Plan

EDUCATION & OUTREACH

Public Awareness
Outreach
Educational programs

NATURAL RESOURCE PROTECTION

Stream and wetland restoration
Erosion control

FEMA Funding Opportunities

- Hazard Mitigation Assistance includes both post-disaster and pre-disaster grants

HMGP is a post-disaster grant program.

PDM, FMA, RFC and SRL are available annually, subject to Congressional appropriations.

- Mitigation Plan Requirement
- Local/State Cost Share
- States Manage Programs and Set Funding Priorities
- State Hazard Mitigation Officer (SHMO) is contact

Mitigation Grants/Programs: OFAs

US Army Corps of Engineers®

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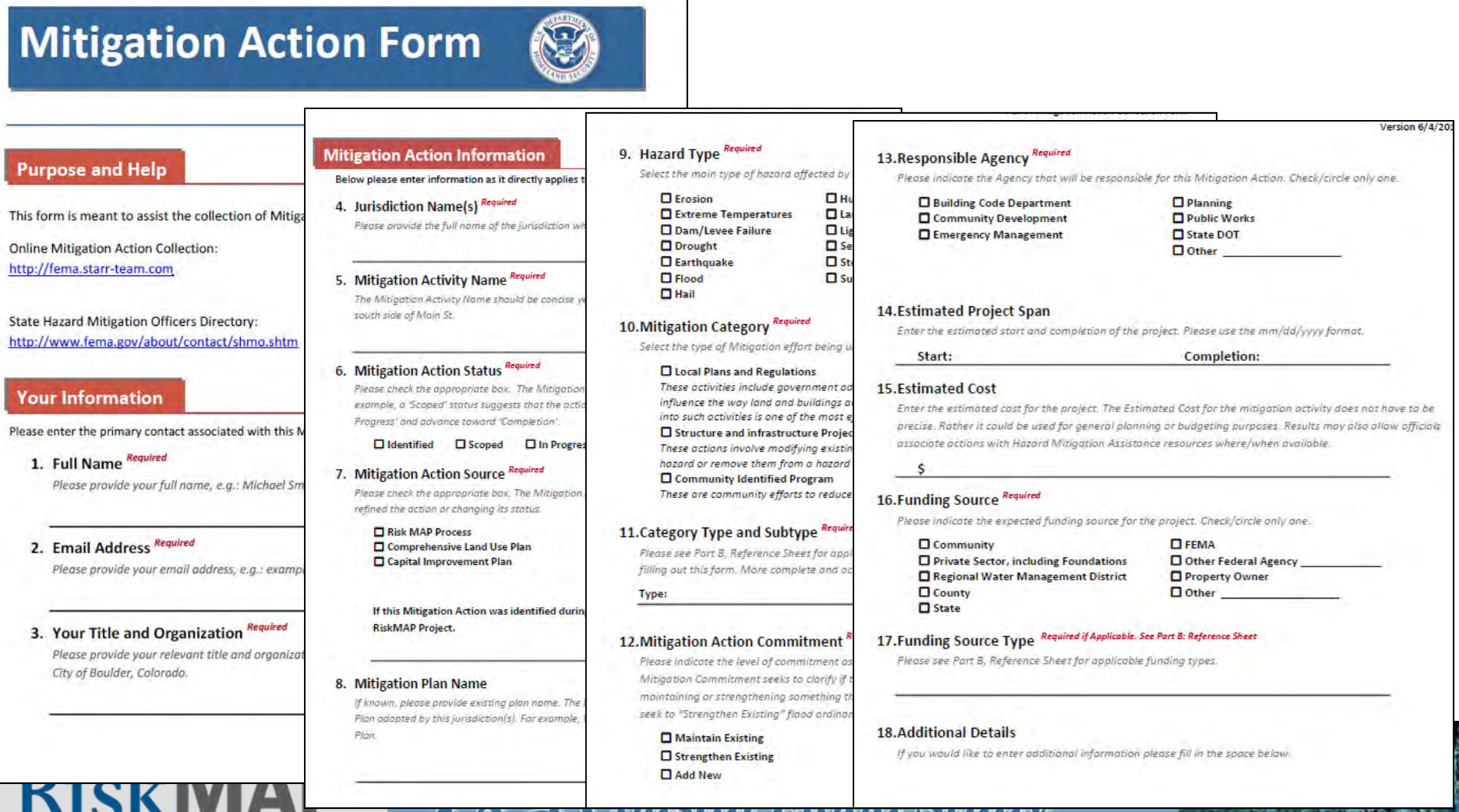
Hazard Mitigation Resources, Strategies & Actions

- The right action (or mix of actions) will be based on recent community experiences and level of complexity in existing infrastructure
  - *Public Works*
  - *Building Standards*
  - *Community Planning and HM Plan Update / Integration processes*
  - *Communication Processes, GIS, etc.*
- Get the right people to the table: Integrated vs. Discipline-specific
- Document ideas and actions through the FEMA Mitigation Action Form

Land Use Ordinances	Local Building Codes	Mitigation Projects	Community Identified Mitigation Programs	Management Best Practices
Zoning, Setbacks, Floodplain Management, etc.	IBC, IRC, Local Regulations, etc.	Acquisition, Elevation, Floodproofing, etc.		Integration of natural hazards into other planning mechanisms

Meet the Action Form



Mitigation Action Form

Purpose and Help

This form is meant to assist the collection of Mitiga

Online Mitigation Action Collection:
http://fema.starr-team.com

State Hazard Mitigation Officers Directory:
http://www.fema.gov/about/contact/shmo.shtm

Your Information

Please enter the primary contact associated with this M

1. **Full Name** Required
   Please provide your full name, e.g.: Michael Sm
2. **Email Address** Required
   Please provide your email address, e.g.: examp
3. **Your Title and Organization** Required
   Please provide your relevant title and organizat
   City of Boulder, Colorado.

Mitigation Action Information

Below please enter information as it directly applies t

4. **Jurisdiction Name(s)** Required
   Please provide the full name of the jurisdiction wh
5. **Mitigation Activity Name** Required
   The Mitigation Activity Name should be concise ye
   south side of Main St.
6. **Mitigation Action Status** Required
   Please check the appropriate box. The Mitigation
   example, a 'Scoped' status suggests that the actio
   Progress' and advance toward 'Completion'.
   ☐ Identified ☐ Scoped ☐ In Progres
7. **Mitigation Action Source** Required
   Please check the appropriate box. The Mitigation
   refined the action or changing its status.
   ☐ Risk MAP Process
   ☐ Comprehensive Land Use Plan
   ☐ Capital Improvement Plan

   If this Mitigation Action was identified durin
   RiskMAP Project.
8. **Mitigation Plan Name**
   If known, please provide existing plan name. The
   Plan adopted by this jurisdiction(s). For example,
   Plan.

9. **Hazard Type** Required
   Select the main type of hazard affected by
   ☐ Erosion
   ☐ Extreme Temperatures
   ☐ Dam/Levee Failure
   ☐ Drought
   ☐ Earthquake
   ☐ Flood
   ☐ Hail
   ☐ Hu
   ☐ La
   ☐ Lig
   ☐ Se
   ☐ St
   ☐ Su
10. **Mitigation Category** Required
    Select the type of Mitigation effort being u
    ☐ **Local Plans and Regulations**
    These activities include government ac
    influence the way land and buildings a
    into such activities is one of the most e
    ☐ **Structure and infrastructure Projec**
    These actions involve modifying existin
    hazard or remove them from a hazard
    ☐ **Community Identified Program**
    These are community efforts to reduce
11. **Category Type and Subtype** Require
    Please see Part B, Reference Sheet for appl
    filling out this form. More complete and ac
    Type:
12. **Mitigation Action Commitment** R
    Please indicate the level of commitment as
    Mitigation Commitment seeks to clarify if t
    maintaining or strengthening something th
    seek to "Strengthen Existing" flood ordinan
    ☐ Maintain Existing
    ☐ Strengthen Existing
    ☐ Add New

Version 6/4/201

13. **Responsible Agency** Required
    Please indicate the Agency that will be responsible for this Mitigation Action. Check/circle only one.
    ☐ Building Code Department
    ☐ Community Development
    ☐ Emergency Management
    ☐ Planning
    ☐ Public Works
    ☐ State DOT
    ☐ Other _____
14. **Estimated Project Span**
    Enter the estimated start and completion of the project. Please use the mm/dd/yyyy format.
    Start: **Completion:**
15. **Estimated Cost**
    Enter the estimated cost for the project. The Estimated Cost for the mitigation activity does not have to be precise. Rather it could be used for general planning or budgeting purposes. Results may also allow officials associate actions with Hazard Mitigation Assistance resources where/when available.
    $
16. **Funding Source** Required
    Please indicate the expected funding source for the project. Check/circle only one.
    ☐ Community
    ☐ Private Sector, including Foundations
    ☐ Regional Water Management District
    ☐ County
    ☐ State
    ☐ FEMA
    ☐ Other Federal Agency _____
    ☐ Property Owner
    ☐ Other _____
17. **Funding Source Type** Required if Applicable. See Part B: Reference Sheet
    Please see Part B, Reference Sheet for applicable funding types.
18. **Additional Details**
    If you would like to enter additional information please fill in the space below.

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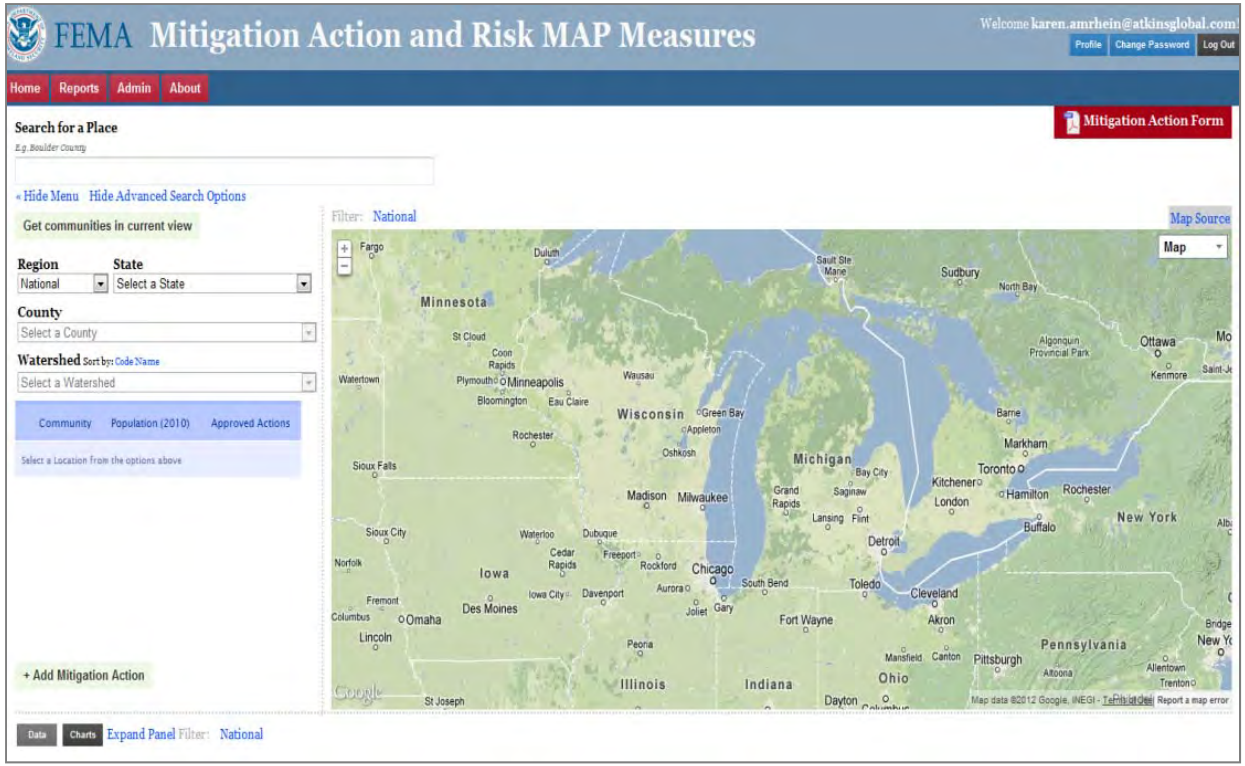
Interactive Session B

- Discuss Mitigation Action Opportunities and Introduce the Mitigation Action Form

Action Tracker



We will input your community's action into the Action Tracker and send you a report and a link - http://fema.starr-team.com

- New mitigation tool
- Houses community-identified mitigation actions
- Actions can be edited by community officials
- A tool for communities to support future mitigation planning efforts

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Results from Interactive Sessions

- **Review and Clarify Communication, Planning, and Compliance Needs**
  - Local coastal areas of concern
  - Existing local coastal data
  - Mitigation Action opportunities
  - Mitigation Action form
  - Action Tracker

Next Steps

- **Communities:**
  - Provide data and Mitigation Action Forms to STARR with a target date of September 14, 2012

- **STARR/FEMA will:**
  - Assess data and information provided
  - Email summary of today's Discovery Meeting to you within one month
  - Prepare final Discovery Maps and Discovery Report
  - Follow-up regarding Risk MAP Project

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Questions?

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Optional Interactive Stations

- **Draft Transect Map Station**
  - View draft transect locations and oblique imagery in data viewer
  - Discuss draft transect locations with technical staff
- **Mitigation Resources, Strategies, and Actions Station**
  - Talk with FEMA and State representatives about areas of concern and potential mitigation actions to help reduce risk
  - Fill out Mitigation Action Form

Contact

- FEMA Region V
  - Ken Hinterlong @ ken.hinterlong@fema.dhs.gov
  - Suzanne Vermeer @ suzanne.vermeer@fema.dhs.gov
- Illinois Partners
  - Ron Davis @ Tron.davis@illinois.gov
- STARR
  - Brian Caufield (technical) @ caufieldba@cdmsmith.com
  - Jaspreet Randhawa (outreach) @ randhawajg@cdmsmith.com
- Online
  - info@greatlakescoast.org

ATTACHMENT G

COASTAL DATA REQUEST FORM COMPILATION

Lake Michigan Coastal Data Request Form Compilation
Risk Assessment and Flood Mitigation Information
***Please refer to sample Coastal Data Request Form found in Attachment A**

CONTACT INFORMATION					RISK ASSESSMENT		FLOOD MITIGATION INFORMATION										
Community, County or State Organization	**County**	**State**	**Contact Name**	**Contact Title**	**Does your community have HAZUS-based loss estimates from average annualized loss?**	**Does your community have other risk assessment data?**	**Does your community have a hazard mitigation plan?**	**Does the plan reflect any coastal flood hazards?**	**Does the hazard mitigation plan indicate any data deficiencies for flood hazards that could be addressed through a flood study, especially near coastal zones?**	**Does your community have on-going mitigation projects, such as acquisition, elevation, flood control, soil stabilization, natural systems restoration, floodproofing, etc.**	**Any specific coastal mitigation projects?**	**Does your community have experience with coastal flood disasters and flood disaster recovery?**	**Does your community coordinate floodplain management programs with programs for the management and planning of open space? If possible, any coastal specific?**	**Have you had any prior proactive mitigation actions and planning efforts that resulted in reduced losses? If possible, any coastal specific?**	**Has your community applied and granted Individual Assistance/Public Assistance grants for declared disasters?**	**Has your community applied for FEMA Hazard Mitigation Grants program or other mitigation funds (USACE, NRCS, USGS, state Hazard Mitigation officer, etc.) in the past?**	**How would you rank the community's ability to implement mitigation actions and to communicate flood risk to citizens?**
Metropolitan Water Reclamation District of Greater Chicago	Cook	IL	Jonathan Grabowy, P.E., CFM	Senior Civil Engineer	No	Yes - MWRD developed H&H models for most inland regional waterways in Cook County as part of a Detailed Watershed Plan program. The MWRD used an in-house damage model for the study. Further detail can be found at http;//stormwater.mwrd.org	No	No	No	Yes - The MWRD has a stormwater capital improvement program for riverine flooding and stream bank stabilization issues. Further information can be found in our annual report, which can be downloaded from: http;//stormwater.mwrd.org	No	No	No	Yes - The MWRD is implementing Tunnel and Reservoir Plan and has implemented a number of flood control projects in Cook County. Projects address flooding from sewers and riverine systems.	No	Yes - Too many to list, non are coastal related.	Medium
Winnetka, Village of	Cook	IL	Susan Chen	Assistant Village Engineer	No	No	No	No		No	No - only storm water outfall improvements	No	No	No	Yes - Two from FEMA: 1 for snow removal 1 for wind damage	No	
North Chicago, City of	Lake	IL	Josh Wheeler	Public Works Director/City Engineer	No	No	Yes - it has been adopted. The Lake County All Natural Hazards Mitigation Plan	Yes - see Hazard Mitigation Plan	No	No	No	No	Yes - Not coastal, but we have worked with local agencies in other flood management.	No	Yes - 1. Snow assistance 2. Recent IKE recipient 3. Wind storm assistance	No	Medium

Lake Michigan Coastal Data Request Form Compilation
Other Data and Historical Flood Data
***Please refer to sample Coastal Data Request Form found in Attachment A**

CONTACT INFORMATION					OTHER DATA					HISTORICAL FLOOD DATA
Community, County or State Organization	**County**	**State**	**Contact Name**	**Contact Title**	**Hydraulic Structures (i.e. bridges, culverts, levees, dams) with inspection status, if available**	**Elevated roads**	**Critical Facilities**	**Other known hazards with geographical boundaries, i.e., landslide hazard areas, storm surge inundation zones, wildfire hazard areas, etc.**	**Other relevant data**	**Are you aware of any coastal flooding issues not represented on effective FIRMs:**
Metropolitan Water Reclamation District of Greater Chicago	Cook	IL	Jonathan Grabowy, P.E., CFM	Senior Civil Engineer	Hard copy available					No
Winnetka, Village of	Cook	IL	Susan Chen	Assistant Village Engineer	Hard copy - Storm outfalls only		Digital - Water & Electrical Plant			No
North Chicago, City of	Lake	IL	Josh Wheeler	Public Works Director/City Engineer			Hard copy data available			No

Lake Michigan Coastal Data Request Form Compilation
Basemap Data and Coastal Data
***Please refer to sample Coastal Data Request Form found in Attachment A**

CONTACT INFORMATION					BASE MAP DATA		COASTAL DATA						
Community, County or State Organization	County	State	Contact Name	Contact Title	Topography	Property Information (Building Footprints, Parcel Data, Tax Assessor's Data)	Coastal Structure Inventory (Seawalls, Jetties, etc)	Coastal Feature Inventory (dunes, bluffs, etc)	Shoreline Change Data	Locations of beach nourishment or dune restoration projects	Areas of significant beach or dune erosion	Mean high water	Mean lake level
Metropolitan Water Reclamation District of Greater Chicago	Cook	IL	Jonathan Grabowy, P.E., CFM	Senior Civil Engineer			Hard copy available					Digital data available	Digital data available
Winnetka, Village of	Cook	IL	Susan Chen	Assistant Village Engineer	Digital data available	Digital data available	Digital data available	Digital data available	1998, 2003, 2005, 2010, Aerials				
North Chicago, City of	Lake	IL	Josh Wheeler	Public Works Director/City Engineer	Digital - from Lake County	Digital - from Lake County	Hard copy - Water Plant					Hard copy - from Water Plant plan	Hard copy - from Water Plant plan

Lake Michigan Coastal Data Request Form Compilation
Community Plans and Projects and Other GIS Data
***Please refer to sample Coastal Data Request Form found in Attachment A**

CONTACT INFORMATION				COMMUNITY PLANS AND PROJECTS							GIS DATA
Community, County or State Organization	**County**	**Contact Name**	**Contact Title**	**Does your community have a comprehensive plan? If so, was your hazard mitigation plan coordinated with the comprehensive plan?**	**Does your community's comprehensive plan have a special consideration for coastal areas?**	**Does your community have a coastal zone management plan?**	**Does your community have planning staff or a planning/zoning commission and other measures, such as ordinances, administrative plans, or other programs contributing to effective administration of floodplain zoning, building codes, open space preservation, and coastal zone management? If so, explain the role in floodplain management and provide examples of programs in place.**	**Does your community have areas of recent or planned development/re-development and areas of high growth or other natural land changes (e.g., wildfires or landslides):**	**Are there any locations of other ongoing studies or projects and studied areas that have been modified since the effective map and require an updated study (e.g., highway improvement, seawall improvement, etc.)**	**Any other comments/concerns based on local knowledge:**	**Other GIS Data Available - include type of data, date of data, data sources, etc if available**
Metropolitan Water Reclamation District of Greater Chicago	Cook	Jonathan Grabowy, P.E., CFM	Senior Civil Engineer	Yes - Our community has a Comprehensive Plan. No - Our community's Hazard Mitigation Plan was not coordinated with the Comprehensive Plan. We have a Capital Improvement Plan for Stormwater issue	No	No	Yes - MWRD has a local sewerage ordinance that requires additional measures on development in the floodplain in the separate sewer area.	No	Yes - None are coastal.		
Winnetka, Village of	Cook	Susan Chen	Assistant Village Engineer	Yes - Our community has a Comprehensive Plan. No - Our community's Hazard Mitigation Plan was not coordinated with the Comprehensive Plan.	No	No	Yes - Assistant Village Engineer reviews all building permits in floodplain and enforces Village's flood hazard protection ordinance.	No	No	facility information provided on form	GIS database provided that includes buildings, contours, street information, hydrology, parcels, and roads.
North Chicago, City of	Lake	Josh Wheeler	Public Works Director/City Engineer	Yes - Our community has a Comprehensive Plan. No - Our community's Hazard Mitigation Plan was not coordinated with the Comprehensive Plan.		No	Yes - City Planner, City Engineer, and Building Commissioner review all permits. Drainage and flooding falls on City Engineer.	No	No	N/A - very little public coastal land. All other land is Navy or Abbott adjacent to lake.	